

The Corps of Royal Canadian Electrical and Mechanical Engineers

Army Development Establishment Preliminary Data Summaries and Equipment Characteristics Sheets in the 1960s



The RCEME Heritage Archives

PRELIMINARY DATA SUMMARY

FOR

SHIP'S DERRICK KIT



ROLE

Used to facilitate rapid loading and unloading on and off ship of Canadian vehicles and equipments under adverse conditions due to lack of dock facilities.

WEIGHT

Boom Assy - 4000 lbs
Rigging Assy - 4000 lbs

DIMENSIONS

Length - 55 ft
Diameter - 3 ft (approximately)

LIFTING CAPACITY

10 Ton (long ton)

ARMY DEVELOPMENT ESTABLISHMENT
O t t a w a . . . C a n a d a

GENERAL DESCRIPTION

The kit consists of the boom, which has a capacity of 10 ton and which would replace the 5 ton boom existing on the ship, a heel fitting to carry the foot of the boom; a goose-neck mast head fitting for the topping gear and a replacement cargo hoist cable to cater for the extra length required by putting additional parts in the hoist.

These additional parts in the cargo hoist enable the ship's 5 ton winch to cope with the double capacity lift without increase of the winch load.

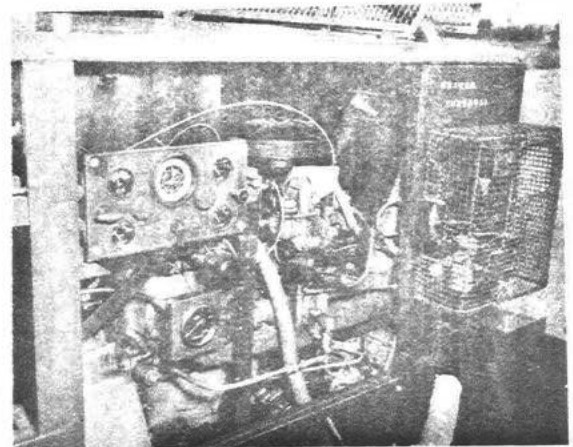
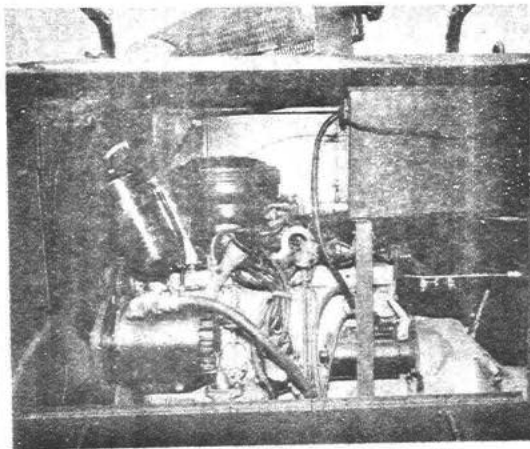
REFERENCES

ADE Dwg No 352776

PRELIMINARY DATA SUMMARY

FOR

ENGINE CHRYSLER INDUSTRIAL 251 MIL C711



ROLE

Prime Mover for Welder Assembly 300 amp.
Designed for applications not requiring close speed regulation.

WEIGHT

Approximately 1500 lbs (ready to operate)

DIMENSIONS

Length - 56"
Width - 28"
Height - 40"

ARMY DEVELOPMENT ESTABLISHMENT
O t t a w a . . . C a n a d a

ENGINE DATA

Max power - 83 BHP Net at 3000 RPM
Max torque - 184 lbs ft at 1200 RPM
Fuel consumption - .55 lbs/BHP hr minimum

FUEL AND OIL CAPACITIES

Crankcase - 5 imp quarts
Fuel - 20 imp gals

GENERAL DESCRIPTION

Engine is basically the same as the T249 engine used in the 3/4 ton, 4 x 4, SMP trucks but has the following major differences:

- (1) Belt driven governor
- (2) Twin disc clutch for belt drive

REFERENCES

Drawing No 1517762

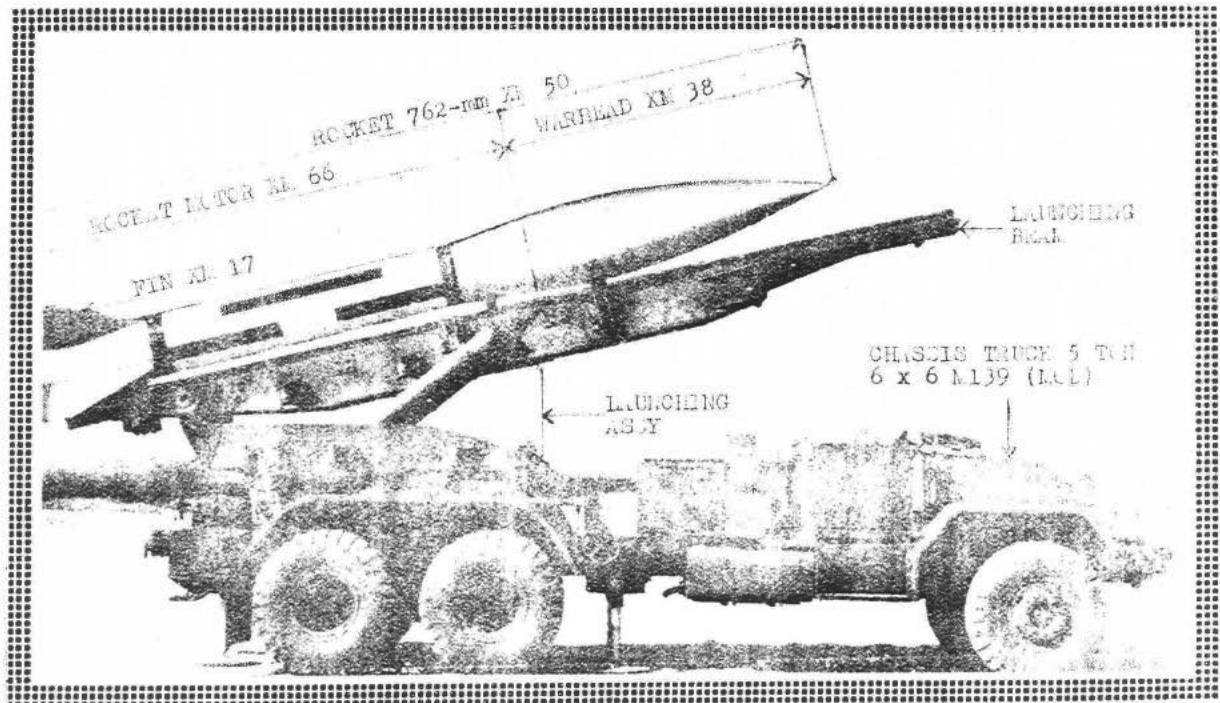
RESTRICTED

Serial

100-1-0

EQUIPMENT CHARACTERISTICS SHEET*for*

**LAUNCHER ROCKET 762mm,
TRUCK MOUNTED, 5 TON 6 X 6 (M386)
with MOTOR ROCKET XM 66 COMPLETE**

*Sty July 1969 (c)***ROLE:**

A long range artillery rocket weapon to provide fire support in battle field operations. Being truck mounted it has a "shoot" and "scoot" capability to avoid counter-battery fire.

CLASSIFICATION:

Standard "A"

Census Code No: 125901✓

NATO Stock No: 1055-00-601-6900

ARMY EQUIPMENT ENGINEERING ESTABLISHMENT - OTTAWA, CANADA

Issue 1

RESTRICTED

Date APR 63

PHYSICAL CHARACTERISTICS

762mm ROCKET

Length	24.87 ft
Diameter, body	23 in
Diameter, across fins	4.65 ft
Diameter, warhead	30 in
Gross weight	4,675 lbs
Warhead weight	1,625 lbs
Empty weight	2,974 lbs
Propellant weight	1,675 lbs

OPERATIONAL CHARACTERISTICS

Burning time	3.4 secs
Thrust (77° F)	108,000 lbs
Maximum range	39,000M
Minimum range	5,000M
Probable error	Variable with range
Time of flight (Maximum Range)	112.6 secs
Velocity	Supersonic
Propulsion	Solid propellant
Guidance in flight	None

PHYSICAL CHARACTERISTICS

LAUNCHER

LAUNCHING BEAM ASSEMBLY

Height overall	30.5 in
Length, front beam extended	414 in
Length, front beam folded	318 in
Total length of launching beam rails	216 in
Width overall	28.5 in
Weight	3,465 lbs
Front beam (each)	153 lbs

TOP CARRIAGE ASSEMBLY

Height overall	27.5 in
Length overall	111 in
Width overall	54 in

CROSS-LEVELLING ASSEMBLY

Front support weight	380 lbs
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ELEVATING MECHANISM ASSEMBLY

Elevating screw assembly:	
Length fully extended (70° elevation)	131.63 in
Length fully retracted (0° elevation)	79.38 in
Type double action telescoping tube	

EQUILIBRATOR ASSEMBLY

Length fully extended (70° elevation)	131.63 in
Length fully retracted (0° elevation)	79.38 in
Spring load, 0° elevation	10,190 lbs
Spring load, 70° elevation	636 lbs

TRAVERSING MECHANISM ASSEMBLY

Traverse maximum (15° right or left)	266.67 in
Type, rack and pinion	

PHYSICAL CHARACTERISTICS

VEHICLE

Weight net	19,590 lbs
Max gross	42,000 lbs
Axle gear ratio	6.443:1
Axle load empty	
Front	9,070 lbs
Rear	10,520 lbs
Tires	
Size	14.00 x 20
Ply	12
Pressure	65 psi
Tread centre to centre, front	76.38 in
Ground clearance	13 in
Fuel octane rating	80

CAPACITIES

Fuel	56 gals
Cooling system	35.2 qts
Transmission w/power take off	8.8 qts
Crankcase	17.6 qts
Transfer	4 qts
Axles, each	9.6 qts
Winch	
Oil capacity	1 qt
Load capacity	20,000 lbs

ELECTRICAL SYSTEM

Voltage	24 volts
Number of batteries	2
Type of ground	Negative

BRAKES

Service	
Manufacturer	Timken, Bendix
Type	Westinghouse
Parking type	Air-hydraulic Transfer

ENGINE

Manufacturer	Continental
Model	R6602
Type	4 cycle valve in head
	6 cyl (in line)
Displacement	602 cu in
Bore	4.89 in
Stroke	5.38 in
Compression ratio	6.4:1
Governed speed	2,800 rpm
Brake horsepower (max w/std accessories)	196 lb-ft at 1200 rpm
Torque	480 lb-ft at 1200 rpm
Transmission type	Synchromesh
Forward speeds	5
Gear ratio	
High	1:1
Fourth	1.43:1
Low	7.31:1
Transfer	
Speeds	2
Gear rated	
High	1:1
Low	2.024:1

PERFORMANCE

Gradeability w/off highway load	43%
Turning radius	47 ft
Fording depth	78 in
Fuel consumption, loaded	3.2 mpg
Cruising range, loaded	224 miles
Governed speed	59 mph

GENERAL DESCRIPTION OF THE ROCKET

A free-flight, solid propellant rocket with a horizontal range of from 5,000 metres to 39,000 metres dependent on the warhead fitted (see appropriate firing tables). It is capable of carrying a warhead section weighing 1,625 lbs. The probable error of the system varies with the range and is listed in the firing tables for bearing, range and height of burst.

The solid propellant rocket motor provides an average thrust of 108,000 pounds at 77° F. Motor burning time is approximately 3.4 seconds depending on propellant temperature variation.

The rocket receives no guidance in flight and, therefore, after burnout follows a ballistic trajectory which is comparable to the trajectory of gun/howitzer artillery projectiles. Stability in flight is achieved through four tail fins. To reduce the effects of thrust malalignment caused by many acturing discrepancies, uneven turning and variation in thrust, four spin rockets mounted in pairs are incorporated into the rocket. The spin rockets are mounted 180° apart around the circumference of the pedestal and are ignited automatically as the rocket leaves the launcher. The spin

GENERAL DESCRIPTION OF THE ROCKET (Cont)

rockets develop a thrust of 2,200 pounds each (8,800 pounds total) and burn for 0.19 seconds, imparting an initial clockwise spin of two revolutions per second to the rocket. This spin is maintained by the tail fins which are canted one degree.

GENERAL DESCRIPTION OF THE LAUNCHER

The launcher is a modified 5 ton vehicle. It is equipped with a rail type launching beam that provides 15 feet of guidance to the rocket. The beam can be hand traversed, power and hand elevated to provide direction.

Sighting and laying equipment used to orient the launcher is the same as that of the field artillery (105 mm and 155 mm howitzers). The panoramic telescope Cdn No 1 MK 1 and gunners quadrant M1 are used in laying the launcher for bearing and elevation.

REFERENCES

AEEE ECs 100-1-1
100-1-2
100-1-3

CAMT 4-2-3 Handling of Units in the Field
the 762 mm Rocket battery.

TM 9-1340-20-2-12
9-1055-202-10
9-500

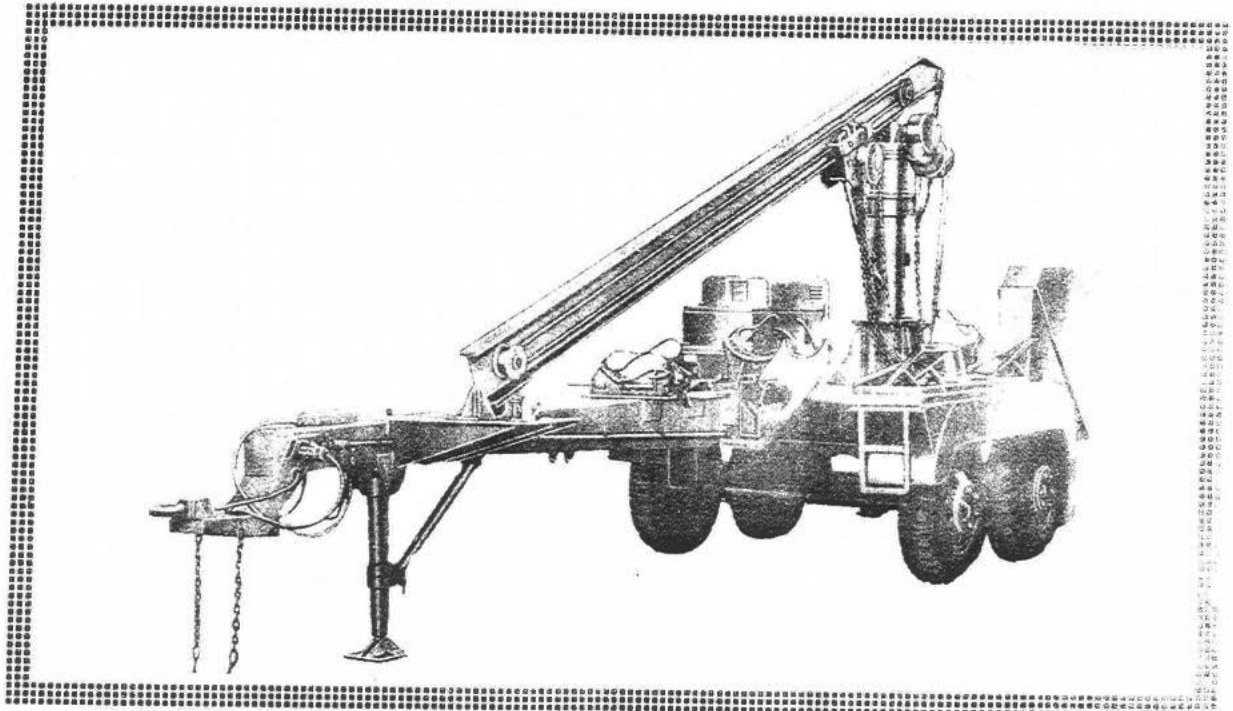
TM 9-1340-205-10
9-1055-205-20
9-1055-205-20P
9-1055-205-35
9-1055-205-35P

EQUIPMENT CHARACTERISTICS SHEET

for

HANDLING UNIT 762mm ROCKET

TRAILER MOUNTED M405A1



95 July 69

12

ROLE

To transport the 762mm rocket from the assembly area to the launching site and to serve as an assembly platform for the rocket.

CLASSIFICATION

Standard "A"

Census Code No: 130113 ✓

NATO Stock No: 1055-00-790-8768

PHYSICAL CHARACTERISTICS

Weight	
Net	8,630 lbs
Payload	6,000 lbs
Gross	14,630 lbs
Towing facilities	
Length	28.15 ft
Width	8 ft
Height normal	10.8 ft
Track tread centre to centre of tires	6.67 ft
Axle	
Type	Tubular
Manufacturer	Ordnance standard
Diameter	4.5 in
Number	2
Service Brakes	
Actuation	Air, over hydraulic two shoe anchor support, expanding cylinder actuation
Manufacturer	Wagner Elec. Corp.
Diameter	15 in
Width	3.3 in
Operating air pressure	100 psi
Parking Brake	
Manufacturer	Houdaille-Herschey
Type	Hand-operated
Application	Rear wheels only
Jack	
Type	Hinged screw adjust- able
Manufacturer	Homan
Length extended	36.32 in
Length retracted	22.5 in
Width of foot	10 in
Length of foot	10 in
Lights	
Voltage	24 volts
Tires, Number	5
Type	Military pneumatic
Size	900 x 20
Design	Cross Country non- directional
Pressure-cross country highway	48 psi
Highway	40 psi
Sand	38 psi
Engine Generator Set	
Manufacturer	Onan
Model	305 ACK 99E/1056C
Type	4 cycle gasoline
Cooling	Air cooled
Bore and stroke	3 x 2.75
No of cylinder	2
Horsepower	11.4
Oil capacity	2.5 qts
Fuel capacity	8 gals

Generator	Onan
Manufacturer	4 pole revolving
Type	armature
Alternating current	3,500 watts, 115 volts
Direct current	75 cycle single phase
Start circuit	1,500 watts, 30 volts
	Separate series field
	winding by use of 24
	volt battery
Hoist	
Manufacturer	Chester
Type	Chain, manually
Capacity	operated
Drive	3 ton
Type	Worm and gear
Ratio	30:1
Beam	
Type	"I" beam, 10 inch
Length overall	18.34 ft
Length between supports	14.34 ft
Chain Drive	
Type	5/8 in single roller
Length	340.6 inches
Number of links	545
Frame traversing beam	
Length extended	12.34 ft
Length collapsed	8.67 ft

GENERAL DESCRIPTION

The handling unit is equipped with a mobile chain hoist attached to an "I" beam, mounted on a hydraulic column, and is capable of transporting the rocket components from the heating and tie down unit or the ground to the handling unit and return or a complete rocket from the handling unit to the launcher and return.

Performance	
Maximum load	6,000 lbs
Speed maximum load	45 mph
Speed cross country	15 mph

REFERENCES

AEEE ECS	100-1-0 ESC 4-5-0
	100-1-2
	100-1-3
CAMTS	4-2-3
TM	9-500
	9-1055-208-12
	Appx III
	9-1055-208-15
	9-1055-208-12

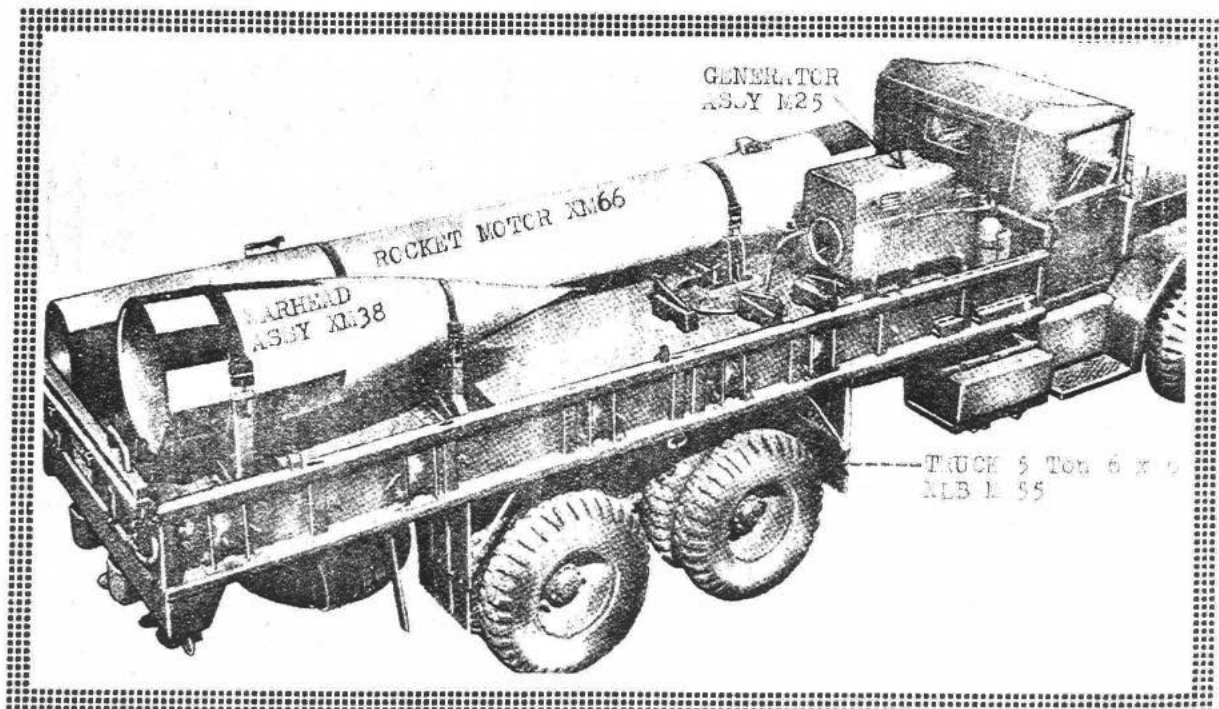
EQUIPMENT CHARACTERISTICS SHEET

for

Sgt July 1969 -

12

HEATING and TIE DOWN UNIT 762mm ROCKET TRUCK MOUNTED 5 TON 6X6



ROLE:

To transport one complete rocket unassembled in containers or on the saddle assemblies.

CLASSIFICATION:

Standard "A" ✓

Census Code No. 125303

NATO Stock No. 1055-00-614-7264

Main Components of Kit Truck Cargo 5 Ton 6x6 (M55)

Generator Set M25	1
Front Warhead assembly	1
Rear warhead assembly	1
Front rocket motor saddle assembly	1
Rear rocket motor saddle assembly	1
Container supports (mounted in truck)	3
Socket and support assemblies (mounted on right side of truck)	5
Electric blanket M2	

PHYSICAL CHARACTERISTICS:

Truck Cargo, 5 Ton 6x6 (M55)

WEIGHT NET

	24,064 lbs
Payload, (off highway)	10,000 lbs
(on highway)	20,000 lbs
Gross (off highway)	34,414 lbs
(on highway)	44,414 lbs
Capacities	
Fuel	62.4 gals
Cooling system	35.2 qts
Crankcase, (refill)	17.6 qts
Transmission (w/power take off)	8.8 qts
Transfer	4.16 qts
Axles (each)	9.6 qts
Winch	
Oil capacity	1.4 qts
Load capacity	20,000 lbs
Electrical System	24 volt
Number of batteries	(12 volt) 2
Type of ground	negative
Brakes	
Manufacturer	Timkin
Type	Air-hydraulic
Parking brake (type)	Dual grip
Engine	
Manufacturer	Continental
Model	R-6602
Type	Gasoline, valve-in-head.
Number of cylinders	6
Displacement	602 cu in
Bore	4-7/8 in
Stroke	5-3/8 in
Compression rates	6.4:1
Governed speed	
full load	2800 rpm
empty	2950 rpm
Brake Horsepower (max)	
w/std accessories	196 at 2800 rpm
w/o std accessories	224 at 2800 rpm
Torque (max)	
w/std accessories	480 lbs ft at 1201 rpm
w/o std accessories	504 lb ft at 1400 rpm
Transmission	
Type	Synchromesh
Foreward speeds	5
Gear ratio	
High	1:1
Low	7.31:1

Transfer	
Speeds	2
Gear ratio	
High	1.068:1
Low	2.163:1
Axle	
Type	Double reduction
Body type	Flat floor
Length	244 inches
Width	88 inches
Sides	14 inches
Tailgate (w/stirrup type steps)	19-1/4 inches
Tires	
Size	11.00 x 20
Ply	12
Pressure	
Highway	70 psi
Cross-country	50 psi
Sand	30 psi
Tread, centre-to-centre, front	73-5/8 in
Ground Clearance	10-1/2 in
Pintle Height (empty)	28-3/4 in
Loading Height (empty)	26-7/16 in
Performance	
Grade ability in lowest gear (loaded)	65%
Turning radius	46 ft
Fording depth	
w/o kit	30 in
w/kit	78 in
Fuel consumption (loaded)	2.7 mph
Cruising range (loaded)	214 miles
Governed speed	52.6 mph
Physical Characteristics gasoline Engine	
Generator Set M25	
Manufacturer and Model	Onan 305 ACK-99E /1056C
Engine type	Gasoline, L-head, four stroke cycle
Generator	Four pole, revolving armature air cooled
Cooling system	Air cooled
Ignition current	Magneto automatic spark retard

Number of Cylinders	Opposed, two cylinders
Speed	2250 rpm
Oil Capacity	3 qts
Fuel supply	8 gal fuel tank
Spark plug gap	0.035 in
Alternating current	3500 watts, 115 volts, 75 cycle, single phase.
Direct current	1500 watts, 30 volts

ELECTRIC BLANKET M2

The blanket is used in two different ways to accomplish uniform conditioning of the propellant grain.

1. as a heating device to raise the temperature.
2. as an insulating device to maintain the temperature.

The important consideration is that the propellant be shielded from temperature changes.

In any weather, summer or winter the blanket should not be removed until just prior to firing.

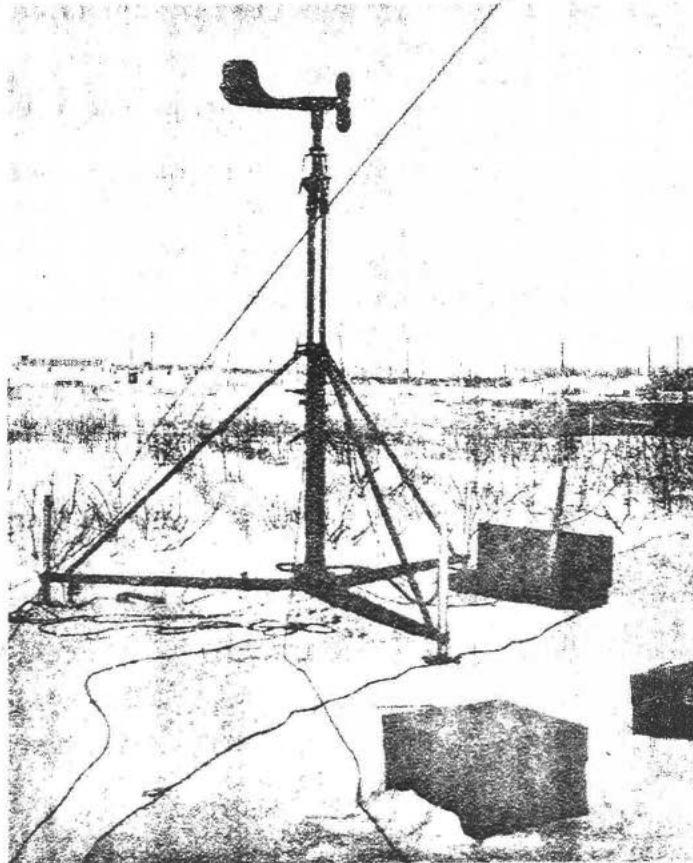
GENERAL DESCRIPTION

The kit consist of an engine generator housing assembly containing a gasoline engine set M25, warhead saddle assemblies, motor saddle assemblies, and socket and support assemblies. The kit is designed to transport the rocket from the ammunition supply point to the assembly and transport section either in containers or mounted on the saddle. During travel the generator set supplies alternating current for heating the rocket electric blanket.

References

AEEE 100-1-0
AEEE 100-1-1
AEEE 100-1-3

TM 9-1055-203-15 appx III
TM 9-1055-203-15
TM 9-500

EQUIPMENT CHARACTERISTICS SHEET*for***WIND MEASURING SET AN/PMQ 6****ROLE:**

To measure the direction and speed of low level winds which will affect the rocket for a short distance after launch.

CLASSIFICATION

Standard "A"
NATO Stock No. 6660-00-682-4459

MAIN ITEMS IN SET

1. Portable mast
2. Transmitter
3. Indicator
4. Air pump

1. Mast AB-503/U
 - a. Mast AB-503/U 1
 - b. Protection cap 1
 - c. Mast retaining cable 1
2. Case Accessories CY-2507
 - a. Driving caps 2
 - b. Guy stake (8 in) triangular 3
 - c. Sledge hammer 1
 - d. "S" hooks or "T" hooks 3
 - e. Allen wrench 5/8 in 1
 - f. Allen wrench 3/8 in 1
 - g. Crescent wrench (10 in) adjustable 1
 - h. Digging bar 1
 - j. Guy reel assembly 6
 - k. Lower guy stays (66 ft) on guy reel assembly 3
 - l. Upper guy stays (80 ft) on guy reel assembly 3
 - m. Mounting feet 3
 - n. Screwdriver 1
 - p. Mast support saddle 1
 - q. Mast support saddle 1
 - r. Lok-tite assembly 2
3. Case Standardized Components Electrical CY-2498/PMQ6
 - a. Impeller (6 blades) 1
 - b. Nose cap 1
 - c. Transmitter wind speed T-610/MMQ1 1
 - d. Balance weight (impeller) 1
 - e. Balance weight (tail vane) 1
 - f. Transmission cable (60 ft) 1
 - g. Indicator cable (225 ft) 1
4. Case Indicator CY 2499/PMQ6
 - a. Indicator wind speed ID-264A/GM 1
 - b. Fiber spudger (5/8 in) 1
 - c. Screwdriver (TL-456/U) 1
5. Case Accessories CY-2508/U
 - a. Junction box 1
 - b. Air pump 1
 - c. Oil can 1
 - d. Pump handle 1
 - e. Air hose (6 ft) 1

GENERAL DESCRIPTION

The wind measuring set consists of a transmitter, an indicator, an air pump and a portable mast. In the transport condition, the three base legs are secured along the side of the portable mast. All other components are stored in carrying cases. The set may be transported in a jeep or in a 3/4 ton truck. The mast extends to 50 feet 1 in and retracts to 9 feet.

REFERENCES

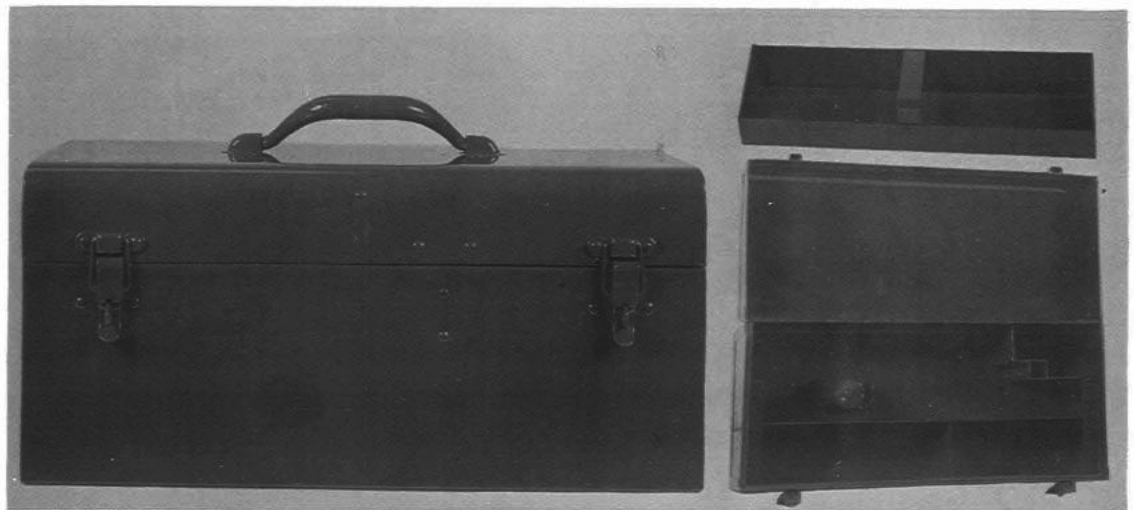
TM-11-6660-203-10
TM-11-3895-201-12P

AEEE ECSs
100-1-0

PRELIMINARY DATA SUMMARY

FOR

CHEST, Accessories and Spare Parts, 81-mm Mortar



ROLE

Used to carry spares and accessories for Mortar 81-MM M29 Cdn.

WEIGHT

(Empty) 7 lbs 3 ozs

DIMENSIONS

Length - 16 ins
Width - 7 ins
Height - 7 1/4 ins

ARMY DEVELOPMENT ESTABLISHMENT
O t t a w a . . . C a n a d a

ITEMS CARRIED IN CHEST

MAIN COMPARTMENT

Setter fuze M27	- 1	Lamp incadescent 3V	
Light instrument M37	- 1	19 amp CGE No 325	- 1
Light aiming post M41	- 1	Flashlight (2 cell)	- 1
Oiler small cap 5-oz	- 1	Rags cleaning	
Pin firing	- 1		

TRAY

Brush cleaning chamber	- 1	Pin straight headed	
Screwdriver offset double end	- 1	DOS Dwg DOS(F) 3-ZC	- 1
Wrench socket head screw		Pin straight headless	
hexagon L handle short	- 1	DOS Dwg DOS(T) 3-ZC	- 1
Setter fuze M25	- 1	Wrench spanner ammn C1	- 1
Tool cleaning firing pin vent	- 1	Wrench spanner ammn C3	- 1

GENERAL DESCRIPTION

The chest is constructed of formed sheet steel with a hinged lid. Two trunk snaps hold the lid closed and permit the use of padlocks for safe custody of the tools. A steel carrying handle is attached to the cover.

A metal tray 1 1/2 inches slanting to 2 1/2 inches deep, 15 1/2 inches long by 4 inches wide fits on top of the partition. A metal strip 3/4 inches wide attached to the tray provides a carrying handle and when the chest is closed it retains the tray in position.

The partition running parallel to the front wall is 4 3/8 inches high and 2 5/8 inches from the front wall. This partition is sub-divided, the section on the left is designed to hold the light aiming post M41, the other section the light instrument M37.

Directly behind the left front section, a raised pylon of sheet steel is designed to hold securely the setter fuze M27 with a rubber washer on top.

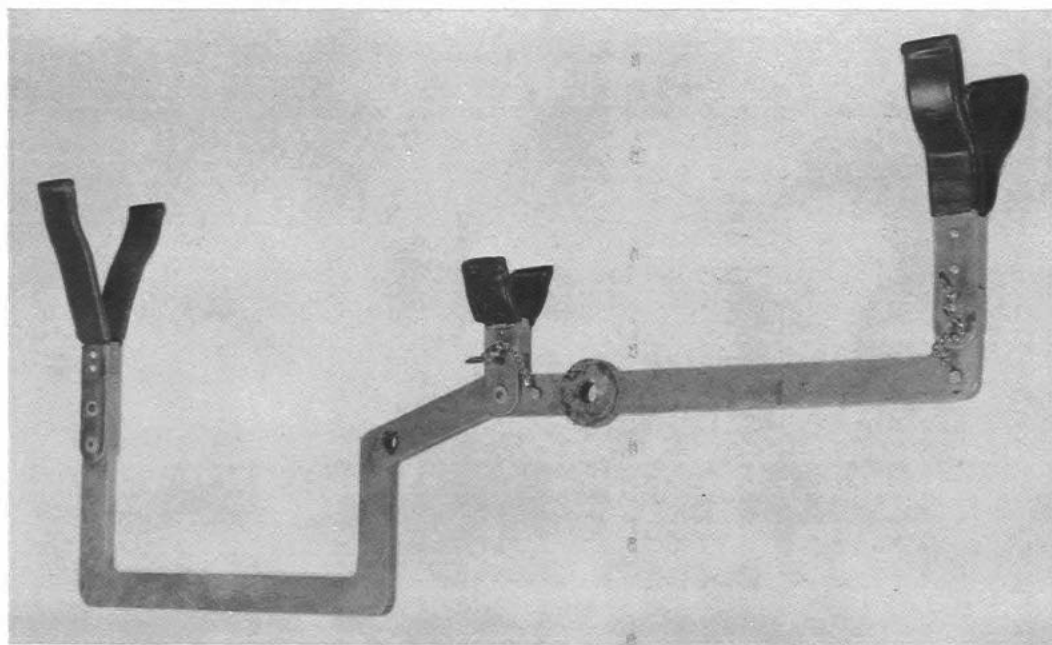
A 4 3/16 inch high partition utilizing the right side and back wall of the chest, forms a compartment to house an oil can and spare firing pin.

REFERENCES

ADE Drawing No F356845

(This information is for prototype equipment and may be changed for subsequent equipment.)

(This issue supersedes Issue 1 dated 25 Aug 59.)

PRELIMINARY DATA SUMMARY**FOR****UNIVERSAL ARM, for Rest, Aiming, No. 1 Mk 3****ROLE**

The universal arm was designed to accommodate a number of small arm weapons of new design and replaces the present arm of the rest aiming No 1 Mk 3 used for sight training of personnel.

WEAPONS

- (1) Gun sub-machine 9-MM C1
- (2) Rifle 7.62-MM FN C1
- (3) Gun light machine 7.62-MM
- (4) Rocket launcher 3.5 in
- (5) Rocket launcher 3.2 in

DATE OF MANUFACTURE - 1958

WEIGHT - 3 lbs

ARMY DEVELOPMENT ESTABLISHMENT
O t t a w a . . . C a n a d a

DIMENSIONS

Length - 27"
Height - 12"
Width - 3"

GENERAL DESCRIPTION

The arm is manufactured from 1-in by 3/8-in aluminum bar stock, bent to the required shape to accommodate the weapons listed. Three supports shaped to fit the weapons are mounted on the arm. The forward support can be folded down to permit sighting of gun sub-machine 9-MM C - (SMG), the centre support can be folded down to allow the remaining weapons to be fitted. The rocket launcher 3.2 in will fit in the arm when it is placed in the reverse position to the other listed weapons.

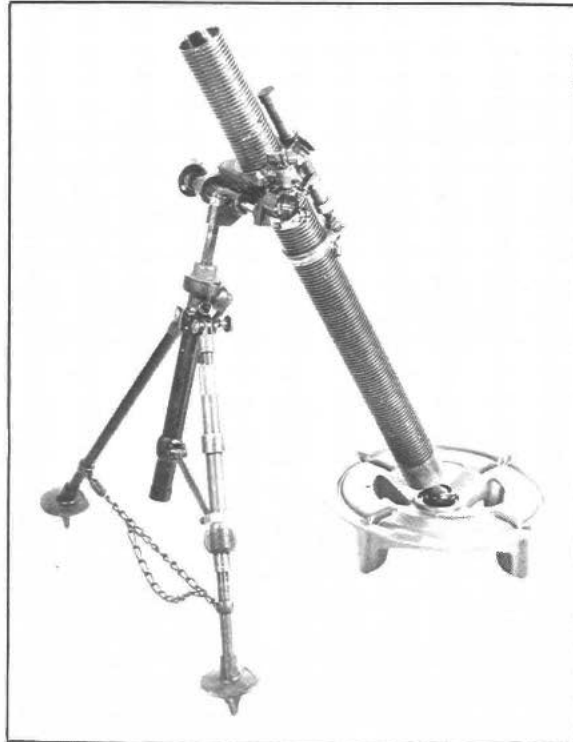
The supports are covered with leather to prevent scuffing the surface of the weapons.

PUBLICATION REFERENCE

ADE development specifications - Not available.

ADE Drawing Schedule - 352701

(Supersedes Issue 1 dated 21 Nov 60)

EQUIPMENT CHARACTERISTICS SHEET**MORTAR, 81 MM, C2****DESCRIPTION**

The mortar is a smooth bore, muzzle-loading, high angle of fire weapon. Its high angle capabilities permit the mortar to be sited behind high cover and to engage targets behind high cover.

The mortar consists of a tube with a base cap containing a firing pin. The mount consists of a base plate with a bipod assembly provided with elevating, traversing and shock absorbing mechanisms.

OPERATIONAL ROLE - To provide infantry support.

CLASSIFICATION - Standard B.

STOCK NUMBER - 1015-21-103-6232.

Code 222101.

REFERENCES

CAMT 7-61 (1962).
Firing Tables 81mm Mortar C2.
RCOC Ammunition Bulletin Section D Part 3.
EIS - 3073.

**DIRECTOR GENERAL ORDNANCE SYSTEMS
CANADIAN FORCES HEADQUARTERS - OTTAWA, CANADA**

PHYSICAL DATA

Barrel, Cdn, M29

Calibre	- 81mm
Construction	- Steel monobloc (outside helically grooved)
Length	- 51 in.
Weight	- 28 lb

Bipod Mount, Cdn, M1

Construction	- Steel and light alloy
Elevation range	- 800 to 1500 mils
Traverse range	- 100 mils either side of centre
Weight	- 41 lb

Base Plate, Cdn, Mk 1

Construction	- Forged aluminum
Diameter	- 22 in.
Socket size	- 2 in.
Weight	- 25 lb

Sightunit, C2

Accuracy (bearing and elevation)	- 2 mils
Weight	- 2 lb 12 oz
Telescope	
Field of view	- 10°
Magnification	- 1.8 ± 5%
Case	
Diameter (overall)	- 12.25 in.
Height	- 5.25 in.
Weight (complete with sight and accessories)	- 11.5 lb

AMMUNITION

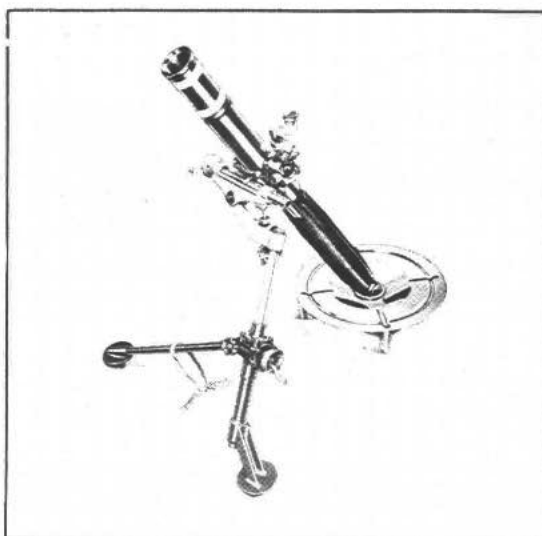
Classification	- Semi-fixed
Types	- High explosive
	- Bursting smoke
	- Illuminating
	- Target practice
	- Training

Fuzes	- Impact
	- Time
	- Proximity

Propelling charge	- Variable, 0 to 6 inclusive
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PERFORMANCE

Muzzle velocity (full charge) HE	- 213 m/sec, 700 ft/sec
Maximum range	- 3000 metres, 3280 yards

EQUIPMENT CHARACTERISTICS SHEET**MORTAR, 81 MM, C3****DESCRIPTION**

The mortar is a smooth bore, muzzle-loading, high angle of fire weapon. Its high angle capabilities permit the mortar to be sited behind high cover and to engage targets behind high cover.

The mortar consists of a tube with a base cap containing a firing pin. The mount consists of a base plate with a bipod assembly provided with elevating, traversing and shock absorbing mechanisms.

OPERATIONAL ROLE - To provide infantry support.

CLASSIFICATION - Standard A.

STOCK NUMBER - 1015-21-846-6470.

REFERENCES

User Handbook, WO Code No. 13795.
Temporary Range Table AAB/51/02 dated 29 Jul 65.
RCOC Ammunition Bulletin Section D Part 5.
EIS - 3072.

/over

**DIRECTOR GENERAL ORDNANCE SYSTEMS
CANADIAN FORCES HEADQUARTERS - OTTAWA, CANADA**

PHYSICAL DATA

Barrel L 16A1

Calibre	- 81mm
Construction	- Steel monobloc (lower half deep finned)
Length	- 50 in. (127 cm)
Weight	- 27 lb (12.28 Kg)

Bipod Mount L 5A3

Construction	- Steel and light alloy
Length (overall folded)	- 45 in. (114.3 cm)
Elevation range	- 45° to 85° (800-1515 mils)
Traverse range	- 5° 40' (100 mils) either side of centre at 45° (800 mils) elevation
Weight	- 26 lb (11.8 Kg)

Base Plate, Cdn, Mk 1

Construction	- Forged aluminum
Diameter (overall)	- 22 in. (55.8 cm)
Socket size	- 2 in. (5.08 cm)
Weight	- 25 lb (11.36 Kg)

Sightunit C2

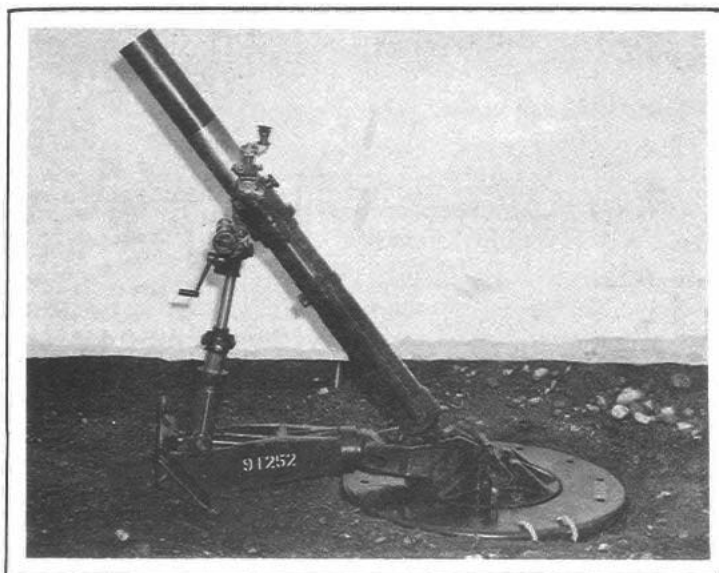
Accuracy (bearing and elevation)	- 2 mils
Weight	- 2 lb 12 ozs. (1.25 Kg)
Telescope	
Field of view	- 10° (180 mils)
Magnification	- 1.8 ± 5%
Case	
Diameter (overall)	- 12.25 in. (31 cm)
Height	- 5.25 in. (13.3 cm)
Weight (complete with sight and accessories)	- 11.5 lb (5.22 Kg)

AMMUNITION

Classification	- Semi-fixed
Types	- High explosive
	- Bursting smoke
	- Illuminating
Fuzes	- Impact
	- Time
	- Proximity
Propelling charge	- Variable, 0 to 6 inclusive

PERFORMANCE

Muzzle velocity (full charge) HE	- 250 m/sec, 820 ft/sec
Maximum range	- 4400 metres, 4800 yards

EQUIPMENT CHARACTERISTICS SHEET**MORTAR, 4.2 INCH, CIA1****DESCRIPTION**

The mortar is a rifled, muzzle-loading weapon intended for high angle firing. It consists of a tube closed at the breech end by a tube cap with an integral firing pin for drop fire. The tube cap is supported and aligned on a base plate. The barrel is supported by a standard assembly which is equipped with screw type mechanisms for elevation and traverse. The force of recoil is absorbed by a spring-type recoil mechanism housed within the standard assembly and two spring-type shock absorbers mounted on the barrel.

The material is designed for disassembly into loads suitable for handcarrying. These loads are: the mortar, standard, bridge, rotator, and base plate.

OPERATIONAL ROLE - To provide close support in operations where light weight is of prime importance and the terrain is inaccessible to field guns.

CLASSIFICATION - Standard A.

STOCK NUMBER - 1015-21-103-6227.

REFERENCES

TM 9-2008, TM 9-2009.
FT 4.2-F-1 dated December 1954.
RCOC Ammunition Bulletin Section D Part 4.
EIS - 3033.

Code 223101

**DIRECTOR GENERAL ORDNANCE SYSTEMS
CANADIAN FORCES HEADQUARTERS - OTTAWA, CANADA**

PHYSICAL DATA

Barrel M30

Calibre	- 4.2 in. (107mm)
Construction	- Steel monobloc, rifled
Length	- 68 in. (173 cm)
Weight	- 156.5 lb (71 kg)

Standard Assembly

Construction	- Steel
Elevation range (firing limits)	
Minimum	- 800 mils
Maximum	- 1065 mils
Traverse range	- 125 mils either side of centre
Weight	- 59.5 lb (27 kg)

Bridge Assembly

Construction	- Welded steel (swivel jointed)
Weight	- 169 lb (76.7 kg)

Base Plate Assembly M24A1

Construction	- Steel (one piece)
Weight	- 193 lb (87.6 kg)

Rotator Assembly

Construction	- Cast alloy
Weight	- 57.5 lb (26 kg)

Sight Unit M34

Accuracy (bearing and elevation)	- 1 mil
Weight	- 4 lb (1.8 kg)
Telescope	
Field of view	- 12° 10' (217 mils)
Magnification	- 3

AMMUNITION

Classification	- Semi-fixed
Types	- High explosive
	- Bursting smoke
	- Illuminating
Fuzes	- Impact
	- Mechanical time
	- Proximity
Propelling charge	- Variable to charge 41 in increments of one-eighth

PERFORMANCE

Muzzle velocity (full charge) HE	- 293 m/sec, 960 ft/sec
Maximum range	- 5425 metres, 5930 yards

EQUIPMENT CHARACTERISTICS SHEET

RIFLE, 7.62 MILLIMETER, FN, C1A1



DESCRIPTION

Rifle, 7.62 Millimeter, FN, C1A1 is an air-cooled, gas-operated, magazine-fed, self-loading weapon. A small quantity of propellant gas in the barrel is bled off to operate the mechanism. This gas is metered by a gas regulator which controls the forces of recoil for smooth operation and supplies reserve power during adverse conditions.

The barrel is fitted with a flash eliminator. A lug on the underside of the flash eliminator is used for the retention of a bayonet, grenade launcher or blank firing attachment.

A change lever is provided on the body of the weapon. This lever can be set to "S" (Safe) position or to "R" (Repetition) position which permits the weapon to fire once for each pull of the trigger. (Cont'd on reverse side.)

REMARKS

This rifle is used as an offensive and defensive weapon by the Canadian Forces and, with modifications to suit national preferences, is used by the British and Australian Forces. It meets the requirements imposed by geographical and physical conditions under which the Canadian Forces must operate.

INFORMATION SOURCE

Equipment Specification CA-A115.
Technical Data Schedule DGOS 352857.

DIMENSIONS AND WEIGHT

LENGTH	WIDTH	HEIGHT	WEIGHT
44-3/4 in. (with normal butt)	----	----	9 lb. 6 oz. (with normal butt)

DIRECTOR GENERAL ORDNANCE SYSTEMS

CANADIAN FORCES HEADQUARTERS - OTTAWA, CANADA

Description (Cont'd)

A plastic carrying handle, attached at the point of balance, folds down against the body of the rifle when not in use. A sling is attached to the rifle by two loops, one on the underside of the butt and the other on the underside of the barrel forward of the gas block.

The rifle is fitted with a blade type foresight and a disc type rear sight. The foresight threads into the gas block to provide vertical adjustment. The rear sight has six apertures. The sight is rotated to the required indexed position for ranges from 200 to 600 meters in increments of 100 meters. It can be zeroed laterally and folded down when not in use. A telescopic sight, night sight or infra-red sighting device can be attached for special applications.

PHYSICAL DATA

Calibre	7.62mm
Length of rifle (normal butt)	44-3/4 in.
Length of barrel	21 in.
Rifling	
Number of grooves	6
Pitch	1 turn in 12 in.
Twist	Right hand
Weight of rifle (normal butt)	9 lb. 6 oz.
Weight with full magazine	10 lb. 15 oz.
Magazine (box type)	20 rounds capacity
Muzzle velocity	2,750 \pm 40 fps
Type of bayonet used	Bayonet C1
Weight of bayonet	11.5 oz.
Length of bayonet blade	Approx. 8 in.
Butt length	
Short	9-3/4 in.
Normal	10-1/4 in.
Long	11 in.
Extra long	11-1/2 in.
Sight radius	21 in.

CLASSIFICATION

Standard "A", Stock No. 1015-21-111-2002.
Supersedes Rifle, 7.62 Millimeter, FN, C1.

PACKING BOX

The rifle is supplied with a corrugated paperboard packing box. The outside dimensions of the box are: length 48 inches, width 8 inches, and height 4 inches. The box weighs 3 lb. 4 oz. when empty and 17 lb. with rifle.

EQUIPMENT CHARACTERISTICS SHEET

RIFLE, AUTOMATIC, 7.62 MILLIMETER, FN, C2A1



DESCRIPTION

Rifle, Automatic, 7.62 Millimeter, FN, C2A1 is an air-cooled, gas-operated magazine-fed, self-loading weapon. A small quantity of propellant gas in the barrel is bled off to operate the mechanism. This gas is metered by a gas regulator which controls the forces of recoil for smooth operation and supplies reserve power during adverse conditions.

The barrel is fitted with a flash eliminator. A lug on the underside of the flash eliminator is used for the retention of a bayonet, grenade launcher or blank firing attachment.

A change lever is provided on the body of the weapon. This lever can be set to "S" (Safe) position or to "R" (Repetition) position which permits the weapon to fire once for each pull of the trigger or to the Automatic position which is not marked. (Cont'd on reverse side.)

REMARKS

This rifle is used as an offensive and defensive weapon by the Canadian Forces and, with modifications to suit national preferences, is used by the Australian Forces. It meets the requirements imposed by geographical and physical conditions under which the Canadian Forces must operate.

INFORMATION SOURCE

Technical Data Schedule DGOS 356267.
Equipment Specification CA-A116.

DIMENSIONS AND WEIGHT

LENGTH	WIDTH	HEIGHT	WEIGHT
44-3/4 in.	----	----	12-1/2 lb. (with normal butt)

DIRECTOR GENERAL ORDNANCE SYSTEMS

CANADIAN FORCES HEADQUARTERS - OTTAWA, CANADA

Description (Cont'd)

In the automatic position the weapon will continue firing as long as the trigger is held back or there are rounds in the magazine.

A bipod is fitted to a projection on the gas block. The bipod folds towards the rear when not in use. When folded, the bipod becomes a hand guard.

A plastic carrying handle, attached at the point of balance, folds down against the body of the rifle when not in use. A sling is attached to the rifle by two loops, one on the underside of the butt and the other on the underside of the barrel forward of the gas block.

The rifle is fitted with a blade type foresight and a disc type rear sight. The foresight threads into the gas block to provide for vertical adjustment. The rear sight has nine apertures. This sight is rotated to the required indexed position for ranges from 200 to 1000 meters in increments of 100 meters. It can be zeroed laterally, and folded down when not in use. A telescopic sight, night sight or infra-red sighting device can be attached for special applications.

The main differences between the C2A1 rifle and the C1A1 rifle are:

- (a) C2A1 has a heavier barrel;
- (b) C2A1 has a bipod;
- (c) C2A1 does not have a hand guard on barrel;
- (d) C2A1 gas block assembly includes a bipod mounting;
- (e) C2A1 backsight differs;
- (f) C2A1 change lever differs slightly to permit automatic fire.

PHYSICAL DATA

Calibre	7.62mm
Length of rifle (normal butt)	44-3/4 in.
Length of barrel	21 in.
Rifling	
Number of grooves	6
Pitch	1 turn in 12 in.
Twist	Right hand
Sight radius	21 in.
Weight (normal butt)	12-1/2 lb.
Weight with full magazine	15 lb.
Weight with empty magazine	13-1/2 lb.
Magazine (box type)	30 rounds
Muzzle velocity	2750 \pm 40 fps
Rate of fire	
Cyclic	675 - 750 rpm
Effective	75 rpm
Butt length (normal)	10-1/4 in.
Type of bayonet used	Bayonet C1

CLASSIFICATION

Standard "A", Stock No. 1005-21-111-2005.
Supersedes Rifle 7.62 Millimeter, FN, C2.

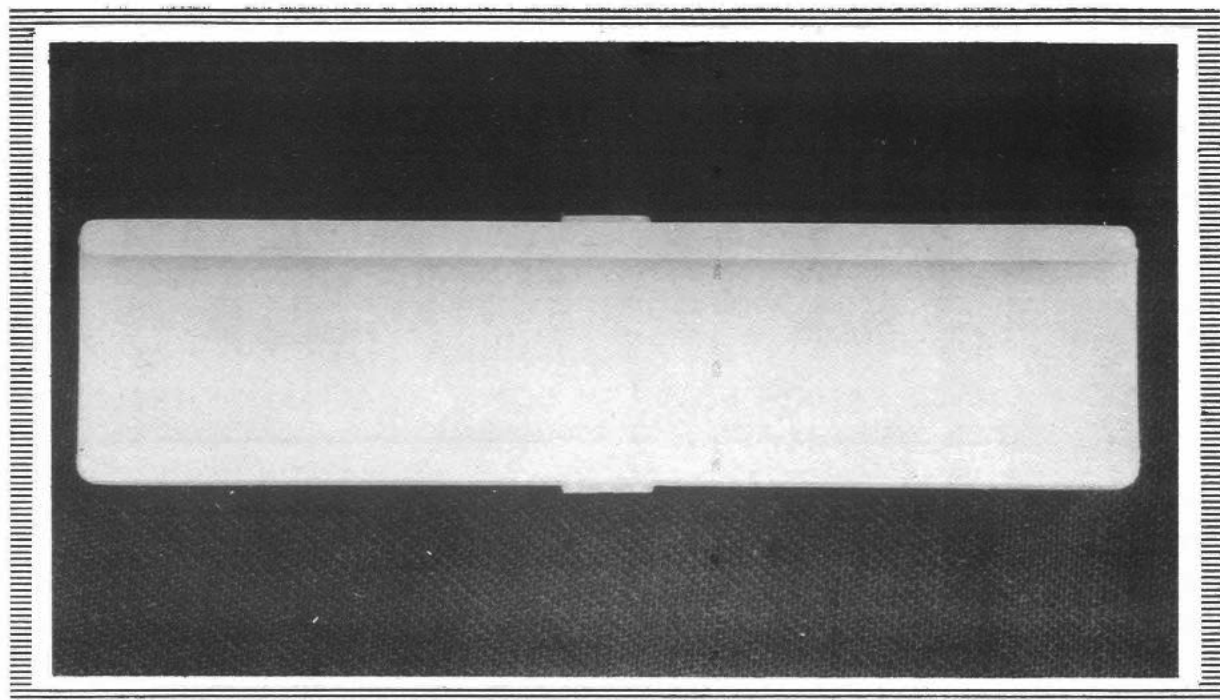
PACKING BOX

The rifle is supplied with a corrugated paperboard packing box. The outside dimensions of the box are: length 48 inches, width 8 inches, and height 4 inches. The box weighs 3 lb. 4 oz. when empty and 22 lb. with rifle.

PRELIMINARY DATA SUMMARY

FOR

CLIP, CARTRIDGE, PLASTIC, 7.62 mm



ROLE

To provide ease of loading ammunition into the magazine of the weapon.

WEIGHT

1/4-oz

DIMENSIONS

Length - 2 5/16-in
Width - 9/16-in
Depth - 3/16-in

ARMY DEVELOPMENT ESTABLISHMENT
O t t a w a . . . C a n a d a

GENERAL DESCRIPTION

The Clip Cartridge plastic 7.62-MM has been designed to hold five rounds of ammunition in position when carried in the bandoleer and provides a fast and efficient means of loading the magazine of the weapon.

The Clip is injection moulded from a plastic material called Delrin. A channel groove on either side of the Clip serves to contain the run of the Cartridge Case and prevents the cartridges from falling out. Two small projections at the centre of either side prevents the Clip from being pushed into the magazine when loading.

The tolerances of the Clip can be closely controlled. This permits much closer limits to be maintained on the pressure required to push the cartridges from the Clip.

The plastic Clip obviates the necessity of a spring as required in the metal Clip to retain the cartridges; it is less expensive, unaffected by moisture, dirt, chemical action, etc.

It can be impregnated with any required colour to identify the type of SA ammunition held.

The low cost of this item permits it to be disposed of after use, thus eliminating any salvage problem.

PUBLICATION REFERENCES

ADE Drawing No - Not available.

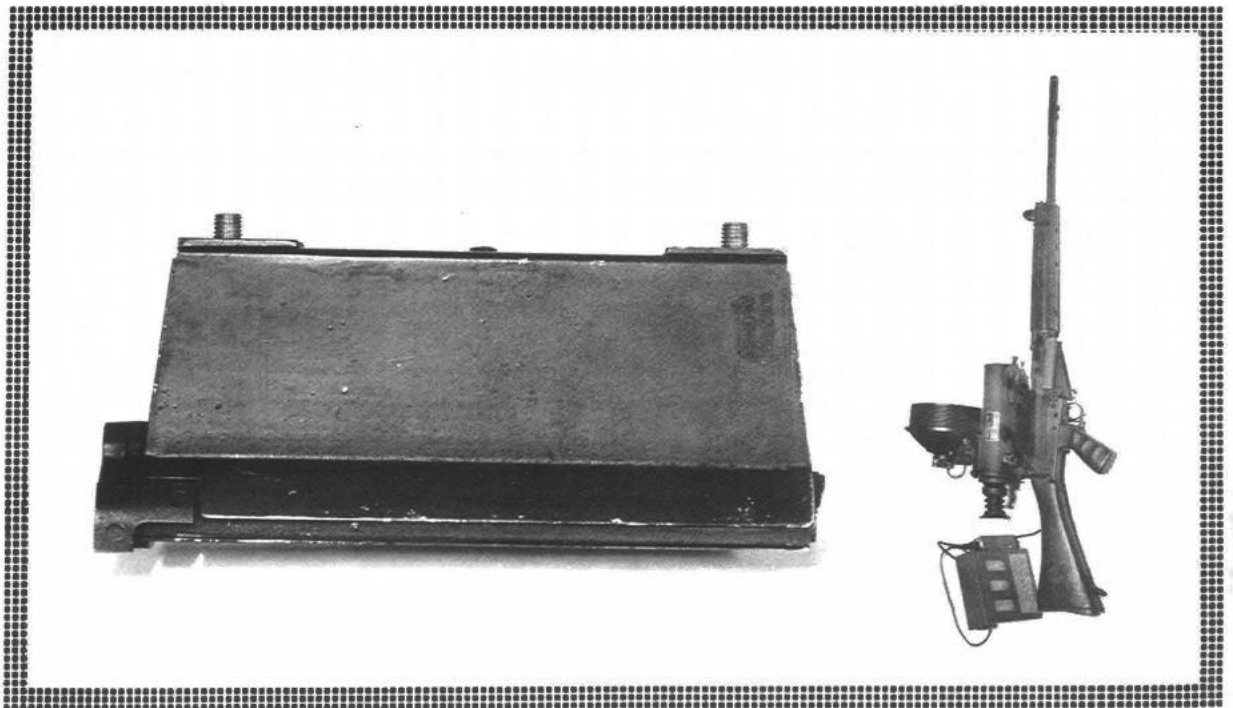
RESTRICTED

Serial 120-6-0

EQUIPMENT CHARACTERISTICS SHEET

for

MOUNT, WEAPON SIGHT,
for 7.62 mm RIFLE



ROLE:

To provide a means of mounting the Weapon Sight Infra-Red to the 7.62 mm Rifle.

CLASSIFICATION:

Standard "A"
Ordnance Stock Class 1090

PHYSICAL CHARACTERISTICS:

Length - 6 inches
Height - 2-3/4 inches
Width - 1-1/4 inches

GENERAL DESCRIPTION:

The Mount is a modified version of the Cover Body Assembly (Short) and consists of a cover body with a mounting bracket spot welded to the top of the cover. The mounting bracket has two mounting screws which engage in the bottom of the telescope of the Weapon Sight Infra-Red, fastening it firmly to the mount and hence to the Rifle.

REFERENCES:

AEEE Project 62-697
AEEE ECS 130-12-0

EQUIPMENT CHARACTERISTICS SHEET

for **GUN, SUB-MACHINE, 9 mm C1**

ROLE OF THE WEAPON

This gun provides the user with a light and easily handled weapon which can be fired in single rounds or bursts either from the shoulder or from the waist. Its effective tactical range when fired at fleeting targets is 75 yards; when a deliberate shot at a stationary target is possible this range can be increased according to the circumstances and the skill of the firer, but the penetrative power of the bullet will seldom justify fire at targets in excess of 150 yards.

The gun is suitable for close quarter fighting and can be fired with the butt folded. Owing to its short barrel it can easily be pointed in any direction, it is important therefore that the gun is not carelessly handled.

CLASSIFICATION

Standard.

PHYSICAL DATAWEIGHT

Gun only	6 lbs - 8 ozs
Gun with	
Full magazine	8 lbs
Full magazine and bayonet	8 lbs - 9 1/4 ozs
Empty magazine	0 lbs - 9 1/2 ozs

ARMY DEVELOPMENT ESTABLISHMENT

O t t a w a - C a n a d a

LENGTH

Butt extended and bayonet fixed	36 ins
Butt extended	27 ins
Butt folded	19 3/8 ins

BARREL

Calibre	9-MM
Length	7.8 - ins
Number of grooves	6
Rifling	Concentric
Twist	Right hand
Pitch	1 Turn in 10

SIGHTS

Blade foresight	
Aperture backsight (adjustable 100 and 200 yds)	
Sight radius	16.4 - ins

MAGAZINE

Box type	30 rounds and 10 rounds
Cyclic rate of fire	Approx 590 RPM \pm 25
Muzzle velocity	Approx 1,340 \pm 40 FPS
Ammunition - Cartridge	9-MM Ball, Mk 1 Cl

GENERAL DESCRIPTION

It is operated by case ejection or blowback action. It is fitted with a change lever which can be set to single shot or automatic and which can be set to safe.

When not in use the butt can be folded under the carbine reducing the length by close to 9 inches.

The carbine can be fired effectively with the butt folded. The forward part of the body which provides a grip for the forward hand, is perforated to permit cooling of the barrel. A guard is fitted on the right near the front of the weapon to prevent any possibility of the firer putting his fingers in front of the muzzle.

The bayonet rifle FN 7.62-MM (C-1) is mounted on the left side nearer the bottom of the body so when the weapon is held in the "on guard" position for bayonet fighting, the natural balance of the carbine, with or without magazine, brings the bayonet into the upright position.

PUBLICATION REFERENCE

1. User Hand Book for the Gun Sub-Machine 9-MM L2 A3 1956 W.O. Code No. 12042/Mans/3911.
2. I.A. Inspection Instructions No. 527.
3. Parts List for Guns Sub-Machine 9-MM L2 A3 1957 W.O. Code No. 12077.
4. Infantry Training Vol. 1. The Sub-Machine Gun (All Arms) 1955 W.O. Code No. 8948.

DRAWINGS ADE AS70

SPECIFICATION ADE CA-AL26

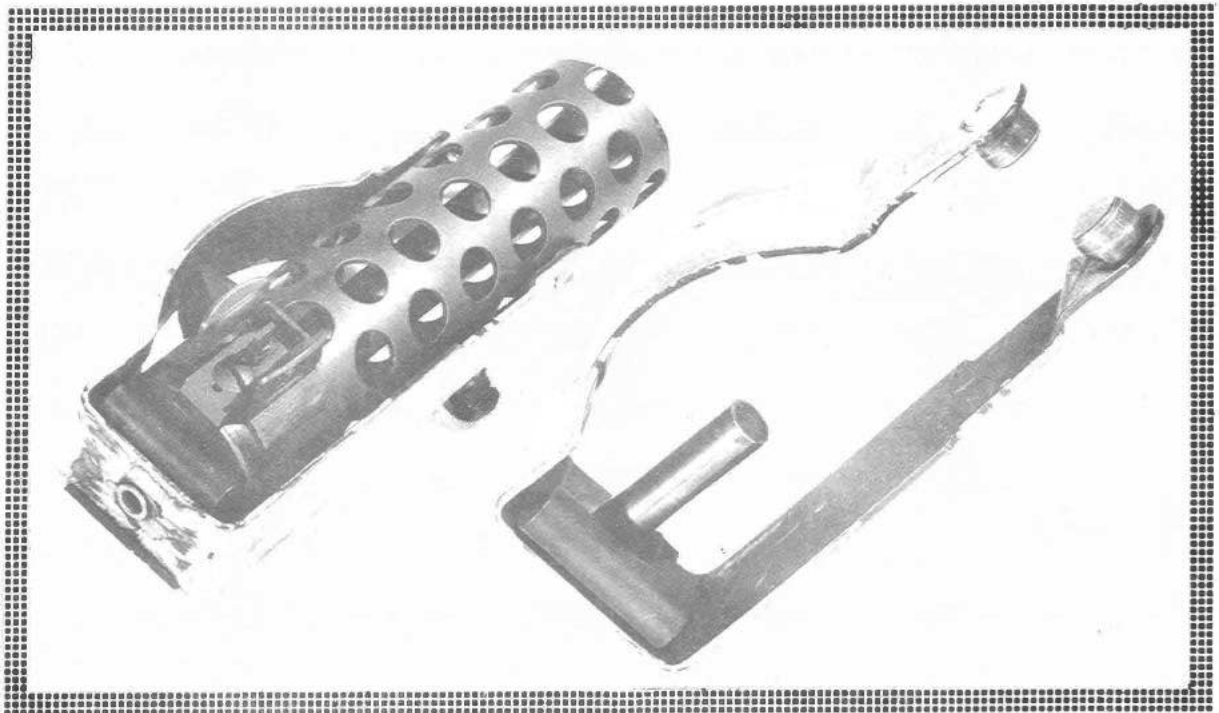
RESTRICTED

Serial 121-1-1

EQUIPMENT CHARACTERISTICS SHEET

for

Gun, Sub-Machine, 9 mm, C1
BLANK FIRING ATTACHMENT



ROLE: To simulate live firing with high degree of safety.

CLASSIFICATION: Standard

DATE: 1960

BASIC WEAPON: Gun Sub-Machine 9-MM C1
(see serial 121-1-0)

WEIGHT: 4 ozs

DIMENSIONS:

Length - 4 3/4 inches
Width - 2 inches
Depth - 1 inch

ARMY DEVELOPMENT ESTABLISHMENT
O t t a w a - C a n a d a

ISSUE 1

RESTRICTED

Date 4 JAN 60

GENERAL DESCRIPTION

This blank firing attachment has been designed to fit the gun sub-machine 9-MM Cl so blank firing may be carried out to simulate live firing. The attachment provides sufficient chamber pressure to allow complete cycling of the weapon.

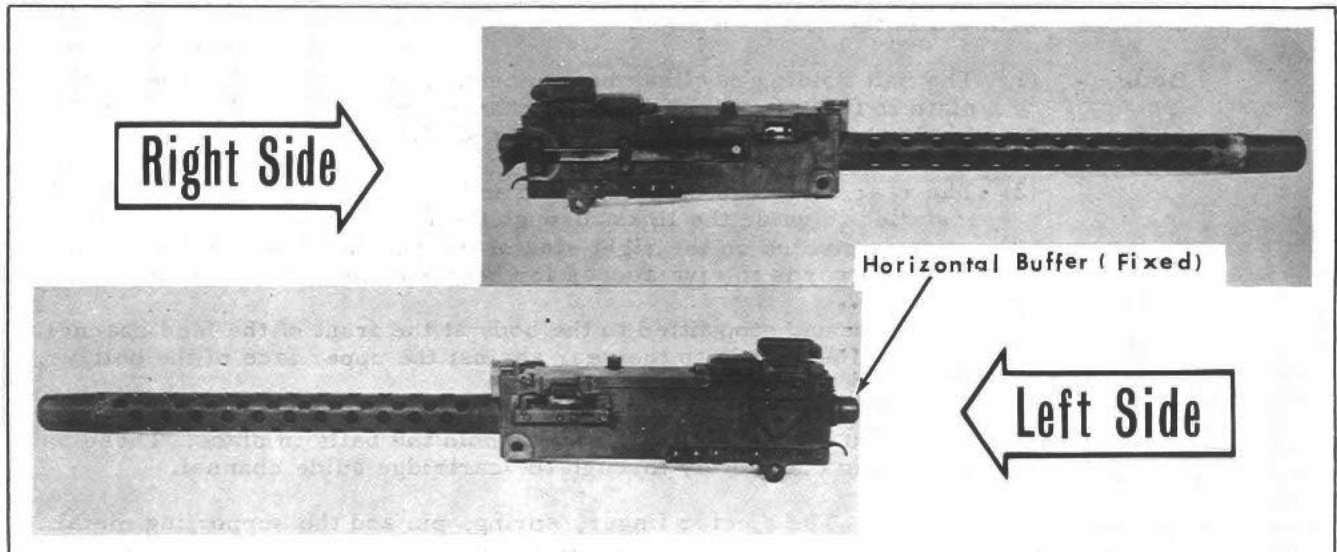
The attachment is made from flat steel material 1 inch wide and 1/16 inch thick. The two rear projections of the strap assembly are provided with taper grooved studs used to secure the attachment to the weapon. At the forward end of the attachment a choke is located centrally on the strap assembly and it is permitted to articulate to allow easy insertion in the barrel. This choke is bored centrally with a diameter which restricts the escape of gas and allows sufficient chamber pressure to permit complete cycling of the weapon. Also at the forward upper end of the attachment a protector is provided to deflect any gas that may escape due to the grooves in the bore in a downward direction thus preventing any discomfort to the user during firing.

REFERENCES:

ADE Schedule of Drawings - A 1175

EQUIPMENT CHARACTERISTICS SHEET

MACHINE GUN, 7.62 MILLIMETER, C1; Fixed Flexible



DESCRIPTION

The Machine Gun, 7.62mm C1, is a disintegrating link belt fed, short recoil, air cooled, medium machine gun. It has a heavy barrel which is mounted in a perforated casing. The front part of the casing forms a bearing to support the front end of the barrel.

The gun was converted from the Browning MG .30 inch 1919A4 to accept the 7.62mm NATO cartridge and NATO link. The conversion was effected by the changes described on the reverse side of this page.

REMARKS

The gun may be either fixed (usually mounted co-axially in an AFV) or flexible (mounted on the deck of a vehicle, or in the ground role from a tripod mount). Fundamentally, the guns are the same except for the back plates which are interchangeable - horizontal buffer (fixed) or pistol grip buffer (flexible).

INFORMATION SOURCE

Equipment Specification CF-M-277
 Technical Data Schedule 383290 (Fixed)
 Technical Data Schedule 377184 (Flexible)

Equipment Issue Scale No. 3078 (Fixed)
 Equipment Issue Scale No. 3077 (Flexible)

DIMENSIONS AND WEIGHT

LENGTH	WIDTH	HEIGHT	WEIGHT
Fixed 40 in. Flexible 41-1/4 in.	4-1/2 in. overall	6-1/2 in. overall	29 lb

DIRECTOR GENERAL ORDNANCE SYSTEMS

CANADIAN FORCES HEADQUARTERS - OTTAWA, CANADA

RESTRICTED

Description (Cont'd)

Barrel - A new barrel manufactured with bore and chamber dimensions to accept 7.62mm NATO cartridge, and with bore and chamber chrome plated.

Plug Front Barrel Bearing - A new plug with a reduced orifice to provide sufficient power to feed the rounds from the 7.62mm link belt.

Cover Assembly - The belt feed slide moved 3/16-inch rearward to suit the shorter 7.62mm round with the link positioned to the rear of the cartridge. A new feed pawl with a link guide finger installed in the belt feed slide.

- Body -
- (1) The belt holding pawl has been moved to the rear by installing a filler plate in the left side of the feed channel in the body. This filler plate is slotted to accept the belt holding pawl.
 - (2) The rear cartridge stop removed and a new component, a link guide, installed to guide the links through the link ejection port. This link guide is pivoted on the right side of the body allowing the guide to be swung upwards to give access for head spacing or to remove the barrel.
 - (3) A short round stop fitted to the body at the front of the feed channel to position the rounds to the rear against the upper face of the bolt.

Bolt - Two ball bearings installed at the bottom of the cartridge guide channel in the face of the bolt with springs and spring retaining pins to hold the balls in place. These balls prevent live rounds from sliding completely through the cartridge guide channel.

Extractor Assembly - The ejector finger, spring, pin and the supporting metal removed. The tail on the 7.62mm link precludes the retention of the ejector finger.

Rear Sight - The leaf modified by engraving new graduations in meters to match ballistics of the 7.62mm round.

PHYSICAL DATA

Calibre	7.62mm .2995 \pm .0020 inch at breech .2980 inch minimum at muzzle
Rifling	
Number of grooves	6
Twist	Right hand, 1 turn in 12 inches
Bore and chamber	Chrome plated
Method of feed	Link belt, disintegrating
Muzzle velocity	2750 \pm 40 fps
Rate of fire	450 to 550 rounds per minute from M2 tripod
Accuracy (200 meters)	8-inch x 10-inch rectangle (Long dimension vertical)
Sight radius	14.7 inches

CLASSIFICATION: Standard 'A'

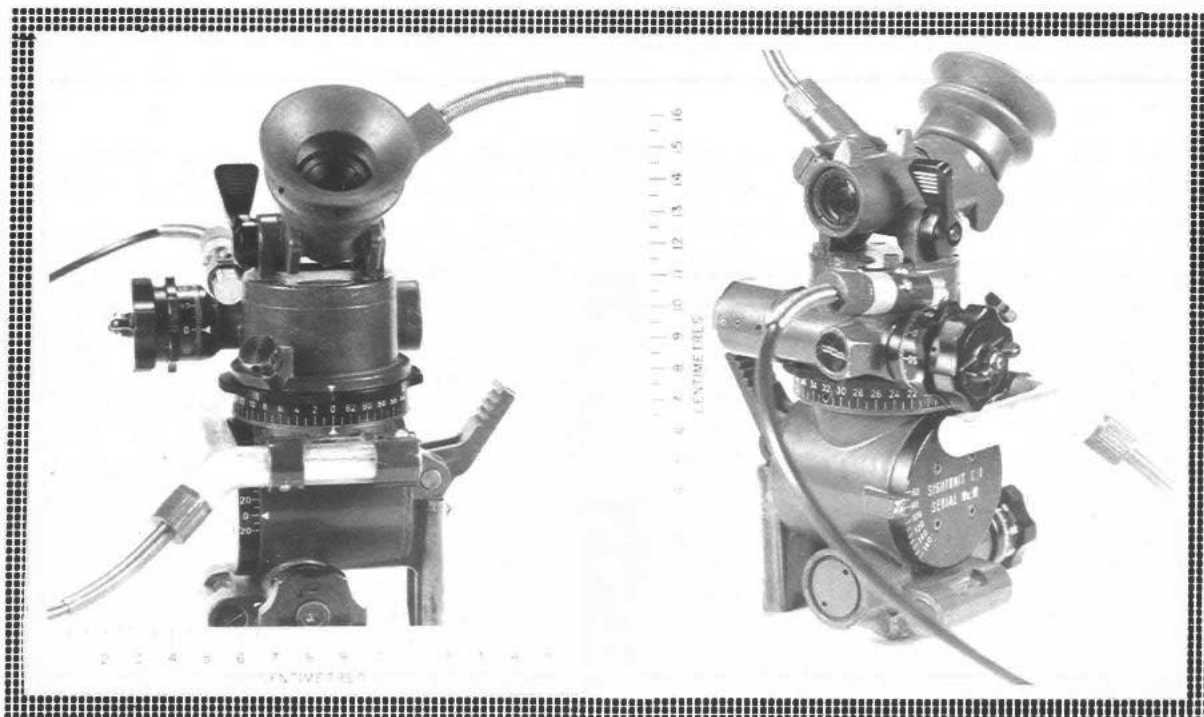
NATO STOCK No: 1005-21-842-4583 (Fixed)
1005-21-841-6505 (Flexible)

RESTRICTED

EQUIPMENT CHARACTERISTICS SHEET

for

SIGHT UNIT C1



ROLE

This equipment was developed to provide sighting for the Medium Mortar and the general purpose (sustained fire) machine gun. The sight may also be used with the heavy mortar, and with the 106-MM recoilless rifle if it is employed in the indirect fire role.

WEIGHT

SIGHT - 2 lbs 12 ozs
LIGHT INSTRUMENT - 1 lb 3 ozs

HEIGHT

7 ins

MAGNIFICATION

X 1.9

TELESCOPE FOCUS

Fixed

ARMY DEVELOPMENT ESTABLISHMENT
O t t a w a - C a n a d a

RETICLE Vertical line.

GENERAL DESCRIPTION

SIGHT UNIT C1

The sight consists of a 45 degree telescope and body which can be mounted on a mortar and machine gun. The telescope is a fixed focus type with a vertical and horizontal line reticle and can be rotated through 180 degrees in its mount.

The body contains an elevation and an azimuth mechanism. The elevation drum is provided with two coarse scales, one scale is graduated from plus 600 mils to plus 1600 mils graduated every 100 mils and numbered every 200 mils for use in the employment of mortars, the other coarse scale is graduated from minus 200 mils to plus 600 mils graduated and numbered as above for use in the employment of machine guns. A fine scale from 0 mils to plus 100 mils graduated every mil and numbered every 10 mils is located on the elevation micrometer knob for obtaining finer settings of the two coarse scales.

The azimuth drum has a coarse scale setting from 0 mils to 6400 mils graduated every 100 mils and numbered every 200 mils and a fine scale setting from 0 mils to 100 mils graduated every mil and numbered every 10 mils. The fine scale is located on the traversing micrometer knob for obtaining finer settings, both are slipping scales. An engraved indicator is provided for azimuth to give a reference mark for the purpose of returning the sight to its original setting.

Bubbles are provided for longitudinal and cross levelling. A bracket to fit the existing dovetail mount on the weapon is provided.

A carrying case is provided for protection of the instrument in transit.

LIGHT INSTRUMENT C7

The Sight unit is provided with a Light Instrument C7 for illumination of the reticle, level bubbles and scales.

The Light Instrument consists of a tubular case which contains two batteries dry 30-BA and three leads with light fixtures attached.

The fixtures are fitted to the sight unit by three brackets fixed to the body. The tubular case is attached to the weapon mount when in use.

The Light Instrument is normally carried in the spare parts box.

REFERENCES

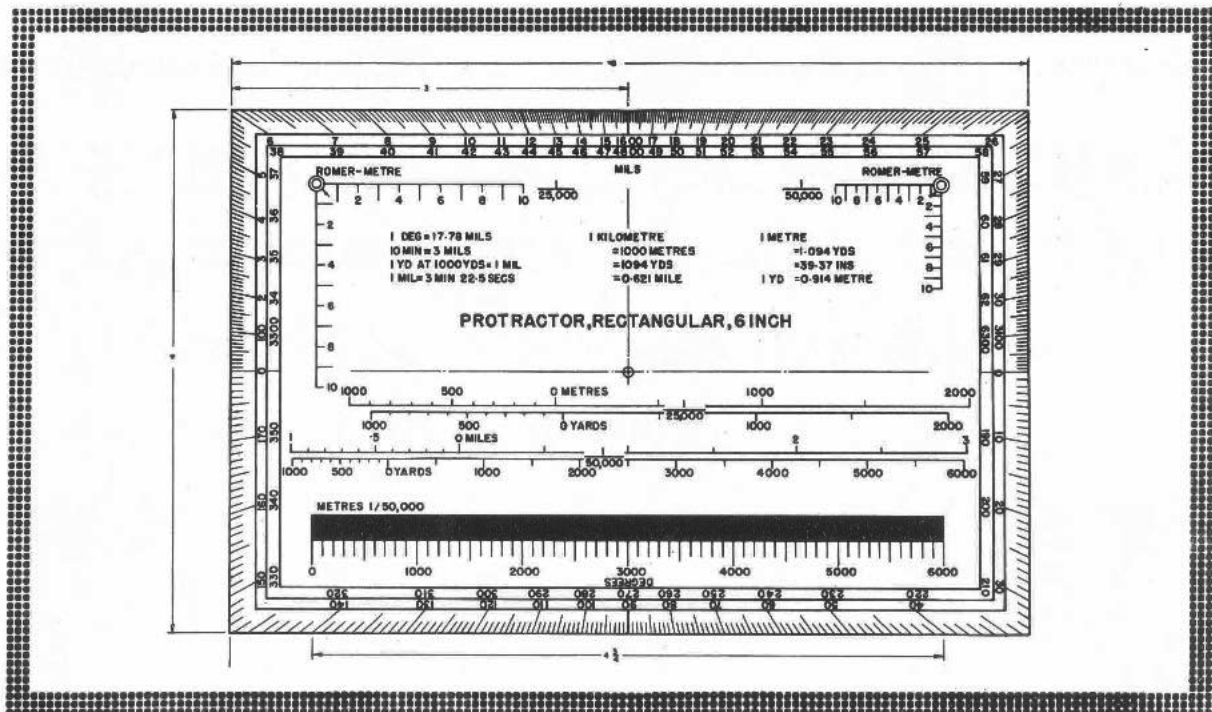
ADE Specification - CA-A143 Issue 2 dated 22 Mar 61

ADE Schedules - Sight Unit C1 No 356861
- Light Instrument C7 No 356880
- Case C1 Sight Unit No 350320

EQUIPMENT CHARACTERISTICS SHEET

for

PROTRACTOR, RECTANGULAR, 6 INCH, C-2



ROLE: This protractor was designed for use with the standard Tripartite Maps scaled 1: 25,000 and 1: 50,000 with military grids of 1000 yards to 1000 metres.

CLASSIFICATION AND DATE: Standard 14 Jan 60

WEIGHT: 1 1/2 ozs

DIMENSIONS:

Length - 6 inches
 Width - 4 inches
 Thickness - 1/16 inch

ARMY DEVELOPMENT ESTABLISHMENT

Ottawa - Canada

GENERAL DESCRIPTION

This protractor is manufactured from clear plastic material. Lithograph process is used to mark the plastic and these markings are protected by thin plastic sheet installed by a heat press.

The protractor has bearing scales marked in mils and degrees, distance scales marked in yards, metres and miles, two romers, one for each scale of map. These romers are marked every 100 metres and numbered every 200 metres up to 1000 metres.

A horizontal line is drawn across the centre of the protractor with a vertical line drawn perpendicular to the horizontal line for an angle of 90 degrees right and left of the vertical at the centre of the protractor. Where the vertical line and the horizontal meet, a hole is provided in the protractor string attachment for angle measurements.

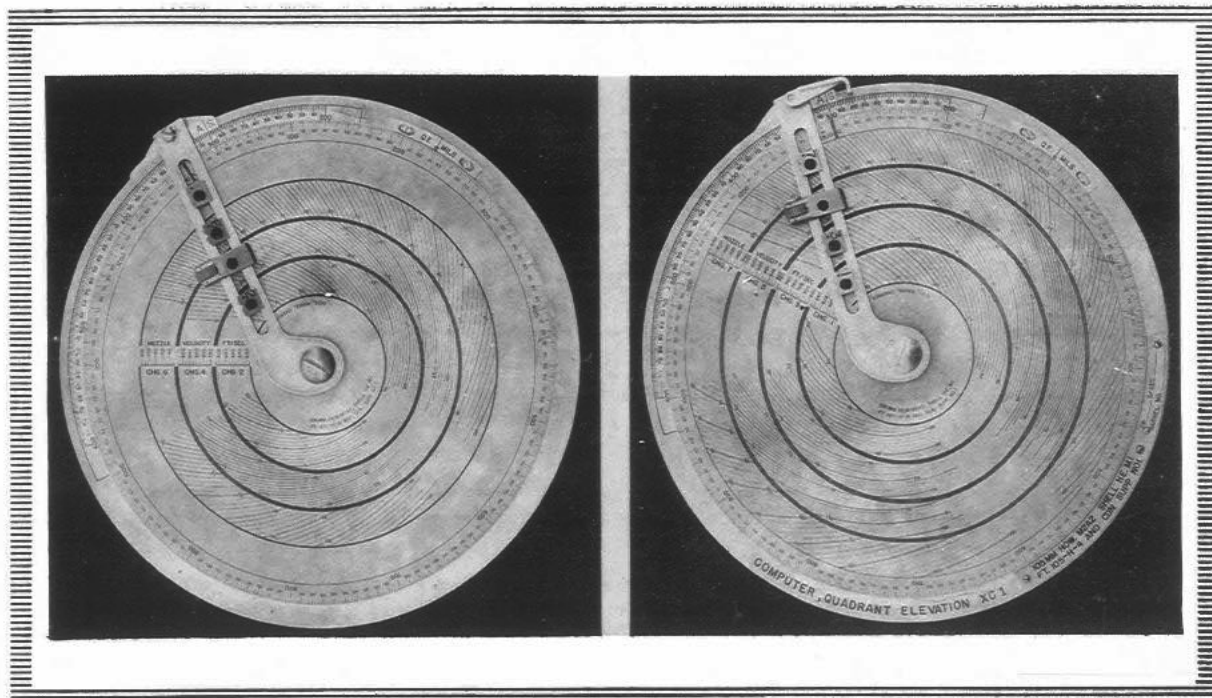
REFERENCES:

ADE Schedule Drawings - (A) - 1212

PRELIMINARY DATA SUMMARY

FOR

COMPUTER, QUADRANT ELEVATION, XC1



ROLE: It is used with non-calibrating sights to convert range to quadrant elevation and compensate for variations in muzzle velocity.

WEIGHT:

- With aluminum range disc - 4 lbs 6 ozs
- With plastic range disc - 3 lbs 7 ozs

DIMENSIONS:

- Diameter of the angle of sight disc - 15.25 inches
- Diameter of the range discs - 13.75 inches

ARMY DEVELOPMENT ESTABLISHMENT
O t t a w a . . . C a n a d a

ANGLE OF SIGHT SCALE:

Two hundred mils to six hundred mils numbered every ten mils and hundred mils and graduated every two mils.

QUADRANT ELEVATION SCALE:

Zero to thirteen hundred mils numbered every ten mils and hundred mils and graduated every two mils.

GENERAL DESCRIPTION

The Computer Quadrant Elevation XCl consists of one centre disc containing the angle of sight scale and the quadrant elevation indicator; two range discs one each side of the centre disc containing the range curves and muzzle velocity scale for all charges and the elevation scale, one disc contain charges one, three, five and seven, the other disc contain charges two, four, six and one blank space. The range discs may be made of aluminum or plastic (vinylite). The range versus elevation curves were computed from firing tables FT 105-H-4 with modified Canadian supplement No. 1 dated 1956 included; two arms one for each range scale, pivoted about the centres of the discs and fixed to each other at their outer ends and they contain muzzle velocity blocks which can be adjusted to the adopted muzzle velocity with a sliding indicator. The indicator is adjustable for muzzle velocity and has a pointer to indicate range. The top of the arms have indicators to indicate angle of sight.

REFERENCES:

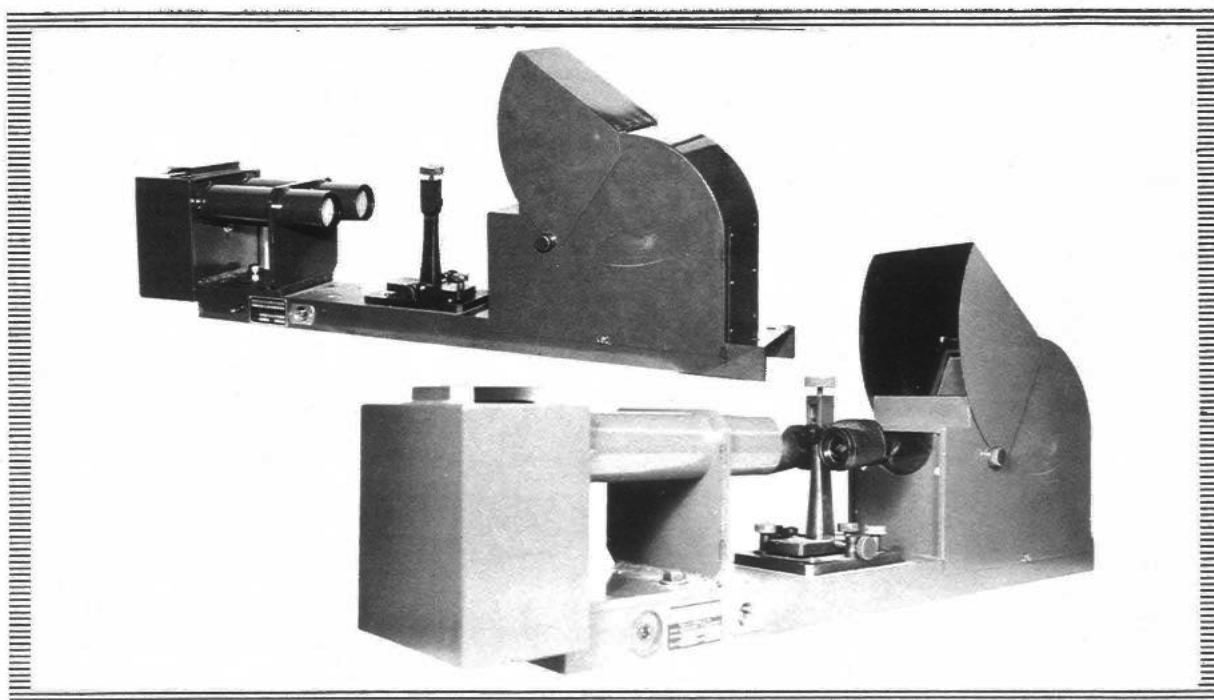
ADE D300128

This information is for prototype equipment and may be changed for subsequent models.

PRELIMINARY DATA SUMMARY

FOR

COLLIMATOR, BINOCULAR, C1



ROLE: Used for testing and aligning the optical components of binoculars prismatic Nos 2 and 5, all marks.

WEIGHT: 39-lbs 9-ozs

DIMENSIONS:

Length overall - 43 3/8-ins
Width overall - 7 3/4-ins
Height overall - 13 1/4-ins

LIGHT REQUIREMENTS:

110 Volt, 60 Cycle, A.C.

MATERIAL:

Made from aluminum and brass with lighting and optical equipment installed.

ARMY DEVELOPMENT ESTABLISHMENT
O t t a w a . . . C a n a d a

GENERAL DESCRIPTION:

The equipment consists of two parallel collimating tubes having illuminated reticles projected through objectives as illuminated target images. These pass through a semi-circular, achromatic, condensing lens falling on a front surfaced mirror tilted at an angle to project them on to a ground glass screen where they appear as two superimposed crosses.

The whole system is mounted on a parallel base which can be fixed to a bench, wall or other means of support.

When a binocular type instrument is placed between the collimator tubes and the condensing lens the target or reticle images are projected through the optical system of the instrument to the condensing lens and on to the ground glass screen. Any misalignment of the optical system appears on the ground glass screen as a displacement of the superimposed reticles images.

PUBLICATION REFERENCES:

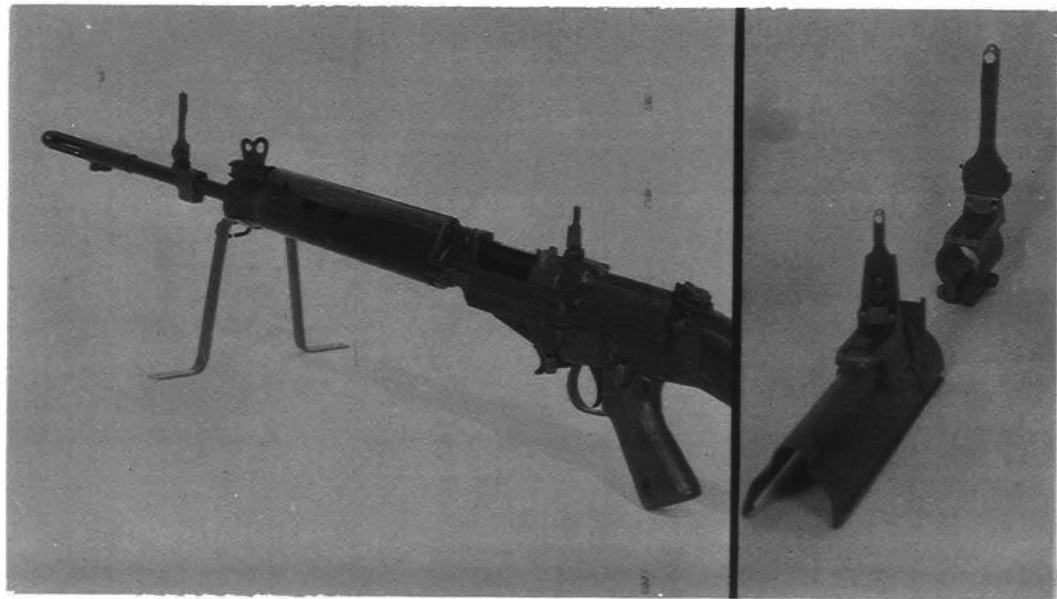
ADE Schedule of Drawings - A1200

This information is for prototype equipment and may be changed for subsequent equipment.

PRELIMINARY DATA SUMMARY

FOR

SIGHT, FRONT AND REAR, NIGHT for Rifle C1 and C2



ROLE

Used for night sighting of rifle 7.62-MM, FN, C1 and C2.

WEIGHT

10 ozs

DIMENSIONS

Front Sight C1 and C2

Width - 1/2 in

Height - 2 in

Rear Sight C1

Width - 1/2 in

Height - 1 1/2 in

ARMY DEVELOPMENT ESTABLISHMENT
O t t a w a . . . C a n a d a

GENERAL DESCRIPTION

The sight consists of a rear sight mount which fits the C1 and C2 rifle and a front sight mount for the C1 rifle and a front sight mount for the C2 rifle. The rear sight mount is fitted to the rifle cover and incorporates a hinge so that it can be folded down when not in use. The front sight mounts clamp around the rifle barrel and can be folded down when not in use.

A plastic heat-sealed sandwiched tritium foil-phosphor light source is incorporated in the sight for illumination.

REFERENCES

ADE Drawing Schedule -

Sight front night C1 - C356867
Sight front night C2 - C356873
Sight rear night C1 - C356875

PRELIMINARY DATA SUMMARY**FOR****TELESCOPE ,SNIPER, C1, CASED****ROLE**

Used as a sniper telescope for Rifle 7.62-MM, C1.

MANUFACTURER

Ernst Leitz (Canada) Ltd

PHYSICAL DATA

Length - 8 ins
Tube diameter - 1 in
Useful eyepiece diameter - $.944 \pm .005$
Useful objective diameter - $.944 \pm .005$
Weight - 10 oz (includes mount)
Magnification - 4 diameters ± 0.4
Field of View ($\frac{360}{\text{Magnification}}$) mils
Eye Relief - Max 2 in; Min 1 in

ARMY DEVELOPMENT ESTABLISHMENT
O t t a w a . . . C a n a d a

GENERAL DESCRIPTION

Focus - the eyepiece is the fixed focus type set between $-.5$ and $-.75$ of one diopetre.

Lateral Adjustment - The reticle is adjusted laterally by rotating the objective mount. Adjustment is provided with clicks of $1/2$ mil measured in object space and with a total reticle movement of 6 mils right and 6 mils left of centre.

Range Adjustment - the reticle is elevated and depressed by rotating the eyepiece mount. Adjustment is provided in clicks of $1/2$ mil (25 clicks) measure in object space. The range drum is graduated up to 1000 yards in 100 yard graduations. An additional reticle movement of 3 mils (6 clicks) is provided at each end of the scale to allow for zeroing.

Zeroing - The elevation and deflection graduations are engraved on slipping scales which permit the sight to be zeroed to the rifle. The deflection scale is graduated every mil with a total graduated scale of 5 mils left and 5 mils right of centre. The letters "L" for left and "R" for right are engraved at each end of the scale to indicate the direction of adjustment. The slipping scales can be adjusted by loosening the screws when zeroing is required.

Mounting Facilities - The mount telescope C2 is used to mount the telescope on the rifle.

Cap Assembly, Telescope and Lens - are provided to protect the telescope lens from rain and snow.

Carrying Case and Accessories - a transit case with carrying sling to carry the telescope sniper, C1, is provided; the case is light, robust, rainproof and gives adequate protection to the telescope from shock encountered in service use. The following accessories are retained in the case:

- a. Screwdriver to fit all screws;
- b. Cap Assembly, telescope lens; and
- c. Cloth cleaning, lens.

REFERENCES

Ernst Leitz (Canada) Ltd drawings:

Telescope Sniper, C1 - ELC1088GA
Mount Telescope, C2 - ELC1471GA and 1472GA
Case, C1, Sniper Telescope - ELC1668GA

PURCHASE DESCRIPTION

DAD-FD-12

RESTRICTED

Serial 130-12-0

EQUIPMENT CHARACTERISTICS SHEET

for

WEAPON SIGHT, INFRA-RED



ROLE

To provide an accurate night firing capability for infantry weapons.

CLASSIFICATION

Standard "A"
NATO Stock No. 1091-00-701-1834

MANUFACTURED BY

VARO Mfg Co, Model 9903

PHYSICAL CHARACTERISTICS

Light Source:	1 lb 12-1/2 ozs
Battery & Cable:	7 lbs
Scope & Mount:	3 lbs 12-1/2 ozs
Receiver Mount:	3-1/4 ozs
Case:	14 lbs 8 ozs
Total Shipping Weight:	28 lbs 8 ozs

ARMY EQUIPMENT ENGINEERING ESTABLISHMENT - OTTAWA, CANADA

Issue 2

RESTRICTED

Date APR 63

COMPONENTS

- Infra-red Sensitive Image-Forming Telescope
- Reticle Projector
- Integral High-Voltage Power Supply
- Battery
- Infra-red Light Source (for mounting on telescope)
- Nickel-Cadmium Battery
- Canvas Carrying Bag (for battery)
- Connecting Cable
- Carrying Case

GENERAL DESCRIPTION

The instrument is basically a narrow beam spotlight with an infra-red filter over the reflector. The light source is provided with azimuth and elevation adjustment in relation to the weapon sight so that the light beam centre can be made to coincide with the centre line of the telescope's visible range.

A replaceable prefocused lamp is beamed by a replica mirror reflector and is powered by a lightweight, 6 volt, rechargeable nickel-cadmium battery carried on the hip in a canvas bag. A 3 position switch mounted on the reflector base provides positive "ON" and "OFF" positions and by pushing in on the switch and holding it, it may be used for intermittent operation.

The instrument is designed for operation in the temperature range of minus 25 degrees (F) to plus 115 degrees (F).

High voltage power supply consists of a solid state circuitry, potted and hermetically sealed in a nickel-plated steel can. A 1.5 volt dry cell battery supplies power to the low (primary) voltage end. The power supply operates from an input of plus 1.5 volts DC at 16 milliamperes and furnishes an output of minus 16,000 volts.

REFERENCES

- AEEE ECS 120-6-0
- TM 5-1090-200-15
- TM 5-1090-200-25P

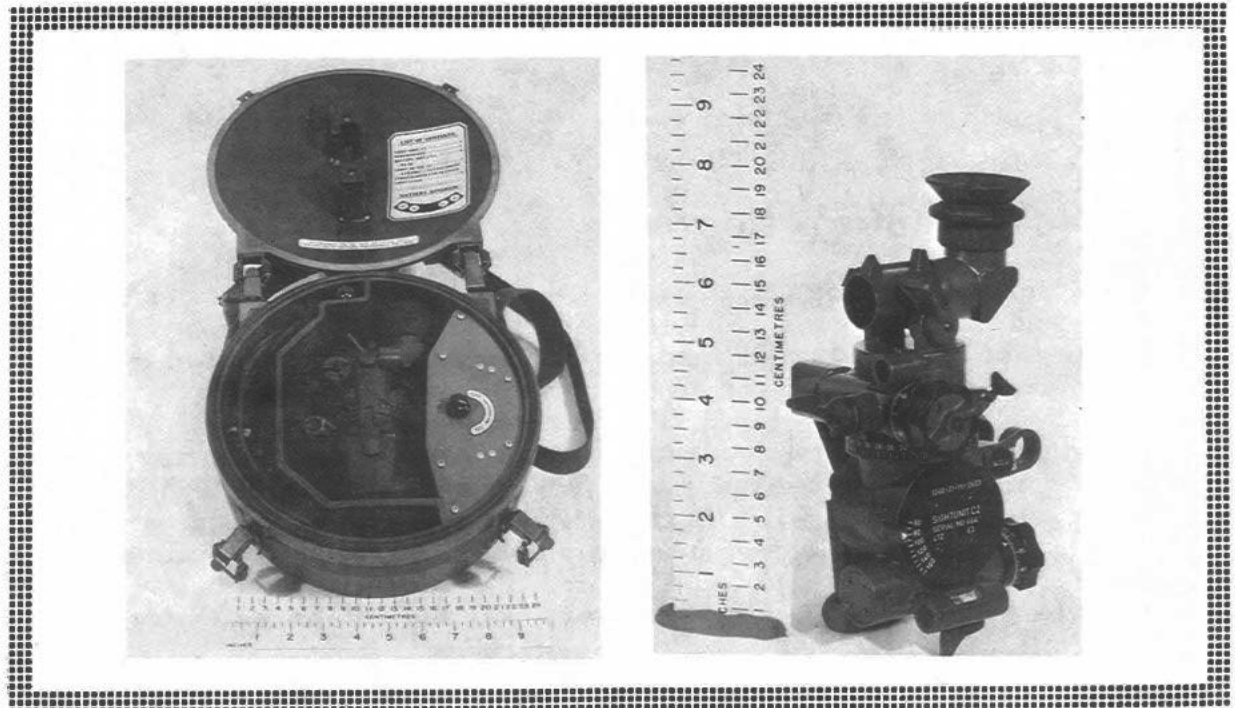
RESTRICTED

Serial 130-13-0

EQUIPMENT CHARACTERISTICS SHEET

for

SIGHTUNIT C2 W/CASE



ROLE

This equipment is designed for sighting the medium mortar and the general purpose (sustained fire) machine gun. This equipment may be used for sighting the heavy mortar and the 106mm recoilless rifle when it is employed in the indirect fire role.

CLASSIFICATION

Standard "A"
NATO Stock No 1240-21-111-2454

ARMY EQUIPMENT ENGINEERING ESTABLISHMENT - OTTAWA, CANADA

Issue 1

RESTRICTED

Date NOV 63

PHYSICAL CHARACTERISTICS

Weight	
Sightunit C2	2 lb, 12 oz (1.25 kg)
Case and Light Instrument (w/Batteries)	8 lb (3.63 kg)
Dimensions	
Height	
Sightunit C2	7 in (17 cm)
Case and Light Instrument	5-1/2 in (14 cm)
Diameter	
Case and Light Instrument	11-1/2 in (29.2 cm)
Magnification	
X 1.9	
Telescope Focus	
Fixed	
Reticle	
Solid vertical line. Broken horizontal line.	

GENERAL DESCRIPTION SIGHTUNIT C2

The sightunit consists of a 90 degree telescope and a body that can be mounted on mortars and machine guns. The telescope is a fixed focus type with an eyepiece assembly that can be rotated through 180 degrees (3200 mils) in its mount. The body contains an elevation and an azimuth mechanism.

The elevation drum has two coarse scales: one for use with mortars is graduated every 100 mils and numbered every 200 mils from plus 600 mils to plus 1600 mils; the other for use with machine guns or low angle trajectory weapons is graduated every 100 mils and numbered every 200 mils from minus 200 mils to plus 600 mils. A fine scale for obtaining fine setting is located at the elevation micrometer knob and is graduated every mil and numbered every 10 mils from 0 to 100 mils.

The azimuth drum has two scales: one is a coarse scale graduated every 100 mils and numbered every 200 mils from 0 to 6400 mils; the other is a fine scale located at the bearing micrometer knob, graduated every mil and numbered every 10 mils from 0 to 100 mils. Each scale is a slipping scale and each scale has two sets of engraved index marks. One set of indices moves with the rotating head and is used as a reference mark for the purpose of returning the sight to its original setting. The second set of index marks is located on the body of the sightunit. The angle read against the second index is the clockwise horizontal angle between the telescope line of sight and the line of fire of the weapon. If the telescope is pointed at an aiming point or stake and the scales are slipped to the bearing on which the weapon is laid, then, if any angle is set on the sight and the weapon is relaid to bring the telescope back on the aiming point, the weapon is pointing on the bearing indicated by the scales.

A quick-release device disengages the azimuth gears to provide for rapid setting when large changes of angle are necessary.

Locking devices on both the elevation and azimuth gears prevent movement during firing.

The elevation and cross-level bubbles are illuminated with tritiated level vials.

The mounting bracket fits the standard dovetail mount used on the USA 81mm M29 Mortar, the British 81mm L1A1 Mortar, and the British General Purpose Machine Gun.

Brackets are provided for holding the light housings which illuminate the scales, bubbles and reticle.

The instrument is protected in transit by the Case and Light Instrument, Sightunit, C1, which also incorporates the lighting set. Details are given below:



CASE AND LIGHT INSTRUMENT, SIGHTUNIT, C1

The Case is made of fibreglass and combines the functions of a protective immersion-proof carrying case for the Sightunit and an instrument light for illuminating the scales, bubbles, and reticle of the Sightunit.

Three light fixtures can be quickly mounted on or removed from brackets on the Sightunit. An electrical lead is provided that plugs into terminals on the exterior of the case, and is sufficiently long for use with all infantry battalion support weapons.

Inside the case is a rheostat, which controls the level of illumination, and three compartments. The battery compartment houses two sets of two 1.5 volt cells. Each set of cells is in a different circuit, and a double-throw switch operated from outside of the case permits the use of either set of batteries; therefore it is unlikely this compartment would have to be opened at night to replace expended batteries.

The centre compartment has a moulded rubber nest. The Sightunit is inserted in the nest and held in place by two rubber-padded supports on the lid. Three spare bulbs are stored in the larger support, and are easily accessible by rotating the rubber pad.

The third compartment has stowage space for a screwdriver, the light fixtures and cables, and a close aiming device. The screwdriver is used by the Mortar Detachment for making adjustments and removing the battery cover. The close

aiming device is used with a prism paralleloscope.

REFERENCES

AEEE Specification - CA-A143 Issue 3, dated 25 Oct 62.

AEEE Schedules

Sightunit C2 w/Case

359980

Sightunit C2

303301

Case and Light Instrument, Sightunit, C1

369825

Manufacturer

Sightunit C2 and Optical Light Fixtures -

E Leitz, Canada, Ltd.,

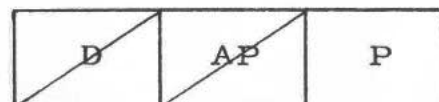
Midland, Ontario, Canada.

Case and Light Instrument, Sightunit, C1 -

WR Elliott, Ltd.,

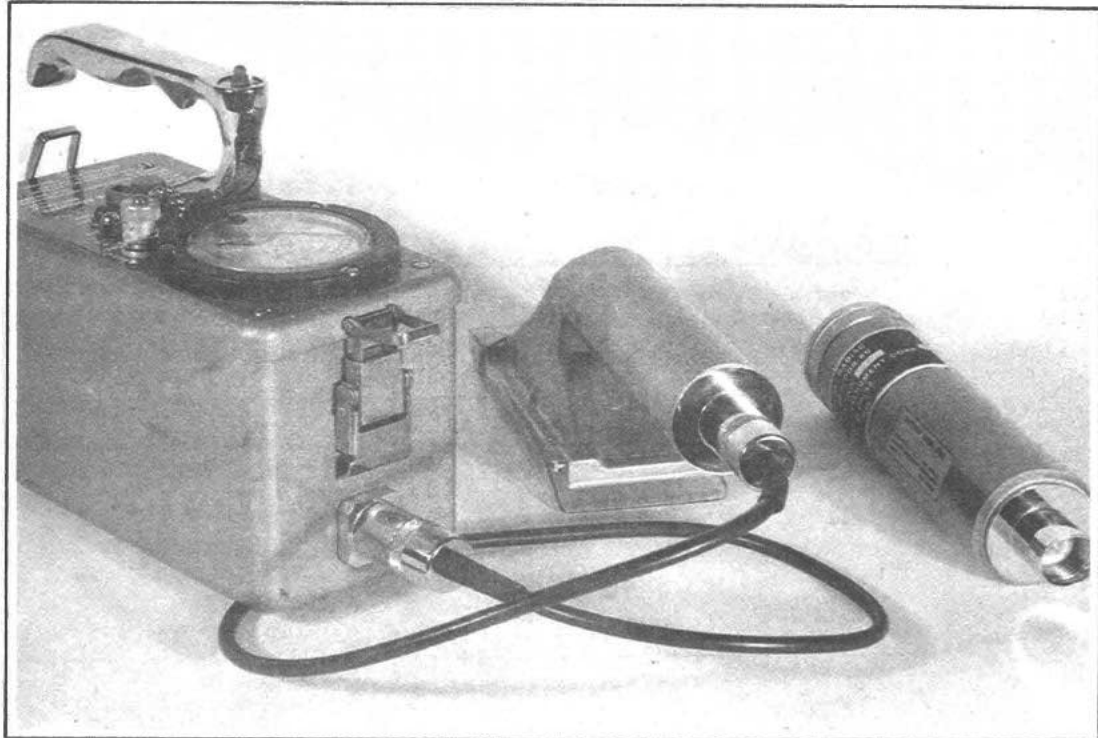
Kitchener, Ontario, Canada.

NATO Data Sheet AC/160(DS)



Training Manual

CAMT 7-61

EQUIPMENT CHARACTERISTICS SHEET**RADIAC SET, ALPHA AND GAMMA SURVEY,
AN/PDR-60****DESCRIPTION**

The AN/PDR-60 is a portable, battery powered, transistorized, visual and aural radiation detecting set. This set is used by Nuclear Accident Support Teams (NAST) and Explosive Ordnance Disposal (EOD) teams in surveys of areas suspected of radioactive plutonium contamination.

This instrument comprises a case, a built-in Geiger-Mueller (GM) tube, an indicating meter, phones, alpha detector probe, and a gamma detector probe. The meter is calibrated from zero to two roentgens per hour (r/hr), and from zero to 2,000 counts per minute (CPM), extended (x 10, x 100, x 1000) by means of a range switch to 2,000,000 CPM. The probes utilize scintillation crystals and are cable connected to the instrument. In adverse conditions when the alpha probe cannot be used satisfactorily, the low energy gamma probe can be

/over

**DIRECTOR GENERAL ORDNANCE SYSTEMS
CANADIAN FORCES HEADQUARTERS - OTTAWA, CANADA**

RESTRICTED

DESCRIPTION (Cont'd)

substituted. The use of this gamma probe, however, is limited to high level plutonium contamination. The meter scale is corrected for 50 per cent geometry for a Pu ²³⁹ source.

CLASSIFICATION: Standard B

STOCK NUMBER: 6661-00-965-1516

MANUFACTURER: Eberline Instrument Corp., Santa Fe, New Mexico

METER RANGES:

Gamma and Alpha Probe	GM Tube
x 1 0-2,000	0-2 r/hr
x 10 0-20,000	
x 100 0-200,000	
x 1000 0-2,000,000	

in counts per minute (CPM)

POWER SOURCE: 7.5 volts (Batteries, Dry, 1.5 volt, BA-30, D-size, Qty 5).

CURRENT DRAIN: 50 milliamperes (approximately).

PHYSICAL DATA:

	AN/PDR-60	Alpha Probe	Gamma Probe
Length	9 in	-----	-----
Height	7-1/4 in	-----	-----
Width	3-7/8 in	-----	-----
Weight	6-1/4 lb	1-3/4 lb	1-3/4 lb

REFERENCES

L 10055-61-668 - Project File

DGEL-130 - Operators Instructions

RESTRICTED

Serial 140-3-3

EQUIPMENT CHARACTERISTICS SHEET

for

RADIACMETER GAMMA SURVEY 0-200 r/hr



ROLE: The Radiacmeter Gamma Survey 0-200 r/hr ("Minirad") is carried in survival kits for use by aircrew who are "downed" in a radioactive area, and who must determine the radiation hazard.

CLASSIFICATION: Standard A

STOCK NUMBER: 6665-00-679-2879

PHYSICAL DATA: Length 3-3/4 in.
Width 2-3/8 in.
Depth 1-1/4 in.
Weight 8 oz.

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Issue 1

RESTRICTED

Date JAN 67

POWER REQUIREMENTS:

6135-00-274-4035 Battery, mercury, BA-1328/U, 1.35 volts nominal, (Mallory RM-1).

6135-00-295-2619 Battery, mercury, BA-1318/U, 5.2 volts nominal, (Mallory TR-114R).

Note: The batteries have a shelf life of approximately 2 years, and an operating life of approximately 100 hours.

METER RANGE:

The meter has only one range. This range has three coloured segments,

green	0.02 -	2 r/hr, indicating free movement,
amber	2 -	20 r/hr, indicating limited movement,
red	20 -	200 r/hr, indicating take cover.

GENERAL DESCRIPTION:

The "Minirad" is a battery powered dose-rate meter, designed to measure gamma radiation. The operating controls consist of two push-button switches, one marked TEST and the other marked READ. The meter scale and the pointer is luminescent.

REFERENCE: Engineering Order 30A-5CH-2.

RESTRICTED

Serial 140-6-0

EQUIPMENT CHARACTERISTICS SHEET

for

RADIACMETER MODEL 440 RF X-RAY SURVEY METER



ROLE: The Model 440 RF survey meter is used by repair and installation personnel to detect and trace stray X-ray or gamma radiation from X-ray machines, high power RF transmitters and heavy radar equipment. The meter indicates dose rates between 0.3 and 300 milliroentgens per hour.

STOCK NUMBER: 6665-21-816-6502

CLASSIFICATION: Standard B

MANUFACTURER: The Victoreen Instrument Co., Cleveland, Ohio, USA.

METER RANGES: 0-3, 0-10, 0-30, 0-100, 0-300 mr/hr.

DIRECTOR GENERAL ENGINEERING (LAND) - OTTAWA, CANADA

POWER SOURCE:

6135-21-803-6004 Battery, Dry, BA 30, 1.5 volts nominal - Qty 4.

6135-21-804-3558 Battery, Dry, BA 216U, 22.5 volts nominal - Qty 1.

Note: The service life of these batteries is approximately 100 hours
(at 4 hours-per-day.)

PHYSICAL DATA:

Length	Width	Height	Weight
9 in.	5 in.	8 in.	5-1/4 lb

GENERAL DESCRIPTION: The Model 440 RF is a portable survey meter designed to detect leakage radiation of X-rays from high voltage sources. The energy range of 12 kev to 1.2 mev is indicated within and accuracy of $\pm 15\%$. In addition, readings of X-rays down to a level of 9 kev may be made with a $\pm 20\%$ accuracy. The instrument is housed in a steel case and is suitably filtered and shielded from the effects of powerful RF fields.

The circuit comprises an ion chamber, vibrating reed electrometer, dynamic capacitor, a-c amplifier, discriminator and a power supply regulator. The meter scale is linear and is graduated from 0 to 3 and from 0 to 10. No external zero adjustment is provided since the instrument is very stable.

REFERENCES:

EO 30A-5CJ-2

File Project L 10055-61-668

RESTRICTED

Serial

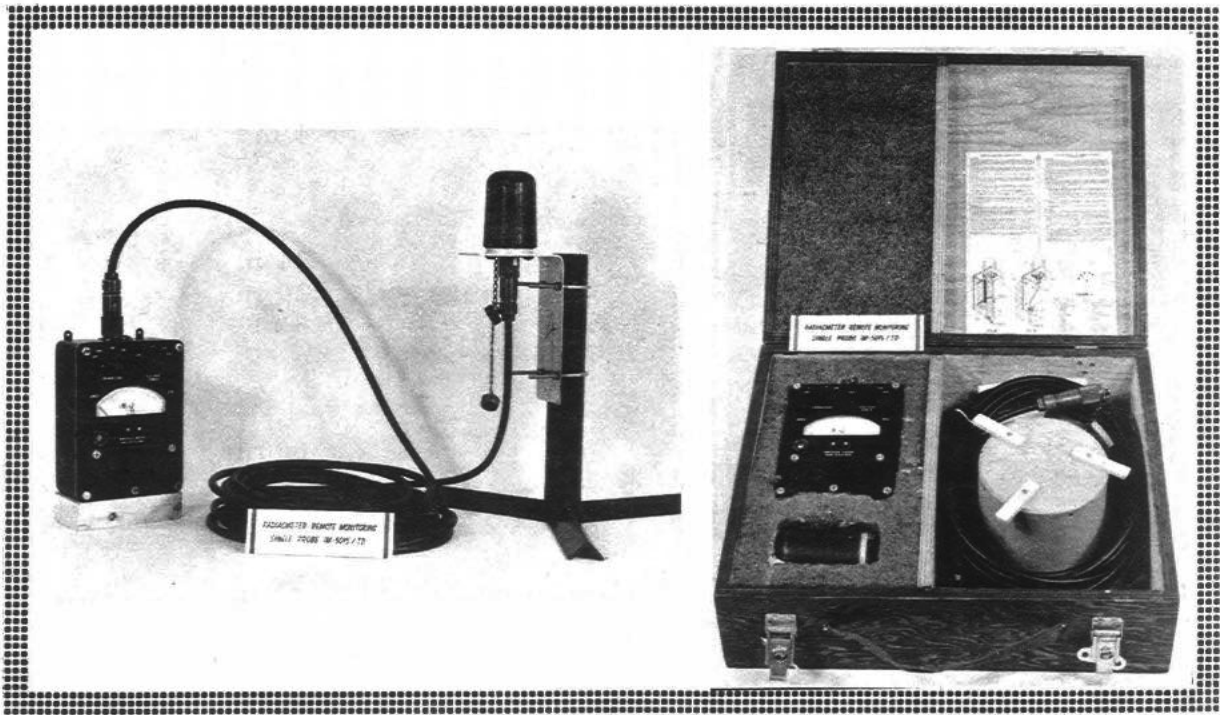
141-2-0

EQUIPMENT CHARACTERISTICS SHEET

for

RADIACMETER, REMOTE MONITORING,

SINGLE PROBE, IM 5015/TD



ROLE:

To detect Gamma Radiation and display the amount of radiation on an indicator. The detector is mounted outside the building or shelter while the indicator is installed inside the building or shelter. The two are connected by cable.

CLASSIFICATION:

Standard "B"
NATO Stock No. 6665-21-104-4904

MANUFACTURER:

RH Nichols Co Ltd. Toronto, Ontario.

ARMY EQUIPMENT ENGINEERING ESTABLISHMENT - OTTAWA, CANADA

MAIN ITEMS OF UNIT:

6665-21-112-0321	Detecting Element, Radiac
6665-21-112-0349	Cable Assembly, Radio Frequency, 3-Conductor, 50 Feet.
6665-21-112-0402	Indicator, Radiac
6665-21-112-0401	Bracket, Detecting Element, Radiac
6665-21-112-0407	Case, Radiacmeter

PHYSICAL CHARACTERISTICS

DETECTOR

Length	5 in
Diameter	3.25 in

INDICATOR

Length	9.5 in
Width	7 in
Depth	4 in

CASE RADIACMETER

Length	24 in
Width	20 in
Depth	8 in

CABLE ASSEMBLY

Length	600 in
--------	--------

RANGE

.1 - 500 r/hr

POWER SUPPLY (Mallory Battery)

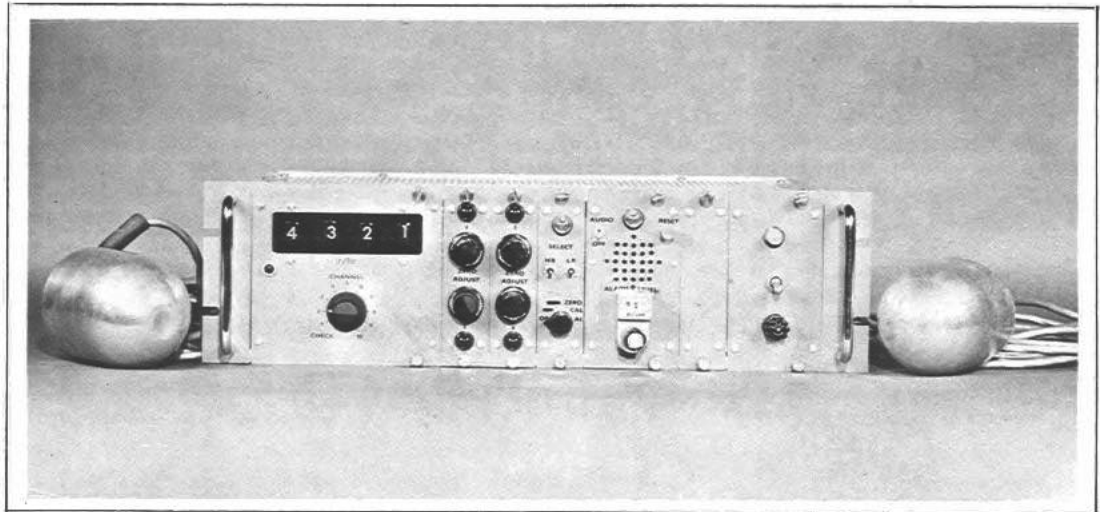
Model	Power	Quantity
1450	1.33 volt	2
TR165R	6.75 volt	7

GENERAL DESCRIPTION

The equipment consists of a detecting element connected by a cable assembly to an indicator. The detector detects Gamma Radiation at its remote location; A current proportional to the radiation dose rate detected is transmitted by means of a cable assembly to an amplifier in the indicator. The dose rate is displayed at the indicator on a 3-1/2 decade, logarithmically calibrated scale, marked over the range of .1 to 500 r/hr. Controls on the indicator serve to check the calibration and zero indication. The equipment operates from batteries contained in a separate compartment within the indicator.

REFERENCES

AEEE Project 60-540

EQUIPMENT CHARACTERISTICS SHEET**RADIATION MONITORING, RECORDING AND WARNING DEVICE
0.1 R/HR TO 5,000 R/HR****ROLE**

The system is designed to provide a means of continuous radiation monitoring at fixed, or semi-fixed ground installations and in ships.

DESCRIPTION

The equipment consists of a rack mounted control console and several sensor heads connected to the console by means of shielded eight-conductor electrical cable. As many as ten sensors may be used at distances up to 10,000 feet. The dose rates are indicated by a digital readout covering a range of 0.1 r/hr to 5000 r/hr with $\pm 20\%$ accuracy, while the audible and visual alarm circuit is preset to a dose rate within 1.0 r/hr to 100 r/hr. A recording device may be added to operate whenever the alarm is triggered, to provide dose rate/time graph from 1.0 r/hr to 1000 r/hr. The operating temperature range for the console is 0°C to 70°C and for the sensors -40°C to 65°C .

CLASSIFICATION: Development Item

STOCK NUMBER:

POWER REQUIREMENTS: 115/230 vac, 50-60 cps, 30 vamp, or
24 vdc, 1.0 amp (stand-by power)

OPERATING RANGES: 0.1 r/hr to 5,000 r/hr - Digital Readout
1.0 r/hr to 100 r/hr - Alarm Range
1.0 r/hr to 1,000 r/hr - Recording Range

**DIRECTOR GENERAL ORDNANCE SYSTEMS
CANADIAN FORCES HEADQUARTERS - OTTAWA, CANADA**

DIMENSIONS AND WEIGHT

	LENGTH in	WIDTH in	HEIGHT in	WEIGHT lb
Console	12	19	5	25
Sensor	5-1/2	3-1/2		1.1
Recorder	--	--	--	--

REFERENCE

OER C13/66
File L 10055-66-043

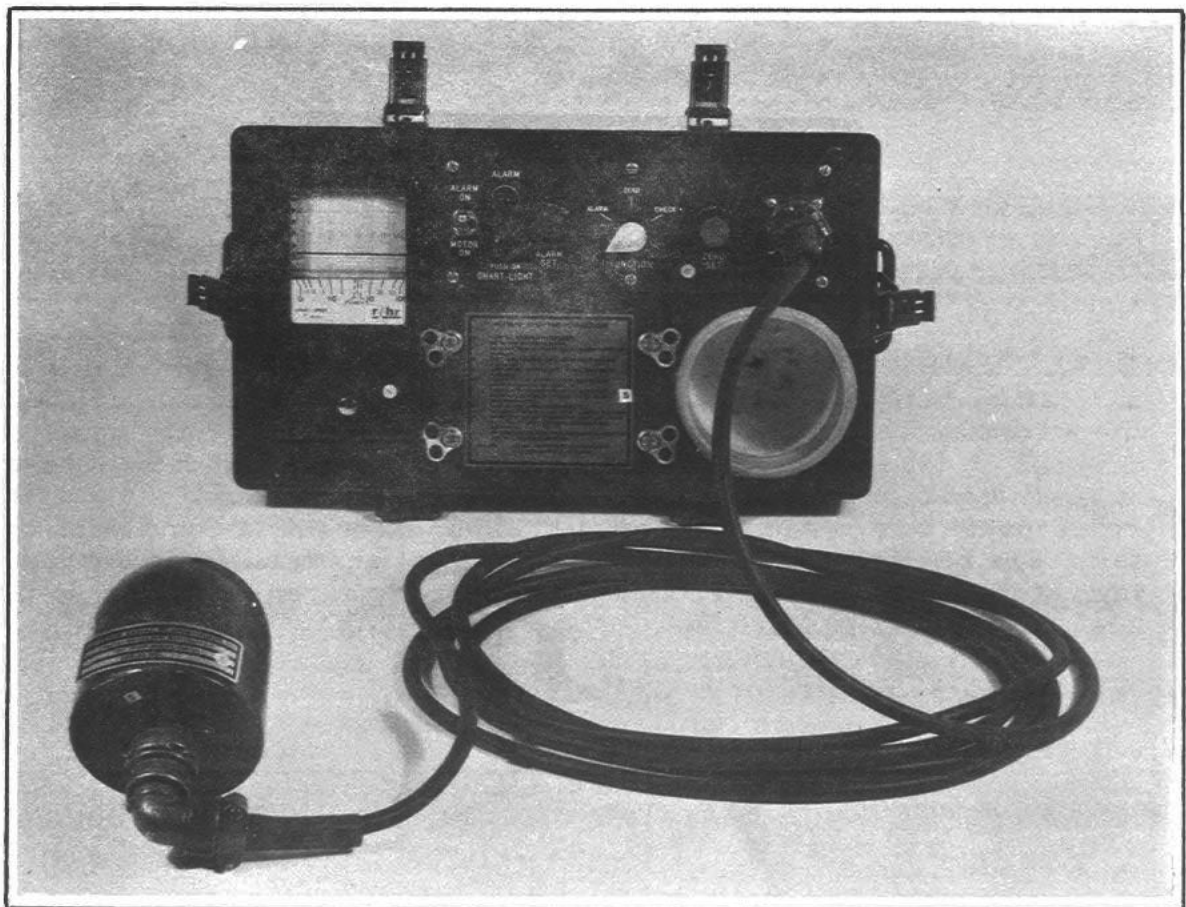
RESTRICTED

Serial 141-4-0

EQUIPMENT CHARACTERISTICS SHEET

for

**RADIATION DETECTION SET
Airborne AN/ADR 501**



ROLE: To provide a quick means of determining ground dose rates by reconnaissance aircraft or helicopter.

PHYSICAL CHARACTERISTICS: (CASED)
Length: 14 ins Height: 8 ins
Weight: 11 lbs Width: 9 ins
Connecting Cable Length: 12 feet (All data is approximate)

CLASSIFICATION: Standard
NATO Stock No. 6665-21-104-4902

MAIN COMPONENTS:
Meter recorder and controls in metal case
Detector Radiac DT-5004
Connecting Cable (12 feet)

GENERAL DESCRIPTION: The equipment is designed to be carried in a light aircraft or helicopter with the detector mounted either inside or outside the aircraft. The device measures and records the dose rate at the detector which is then converted to the ground level dose rate. The meter is graduated from .1 to 100 r/hr and at the optimum height of 500 feet this corresponds to a reading of from 1 to 1000 or roughly a conversion of 10 to 1. The operator marks the position, height and heading on the recording tape at the beginning of the run and periodically during the flight so that area can be readily identified.

REFERENCES: AEEE Drawings C373879
D373860
AEEE Projects 61-644
62-758

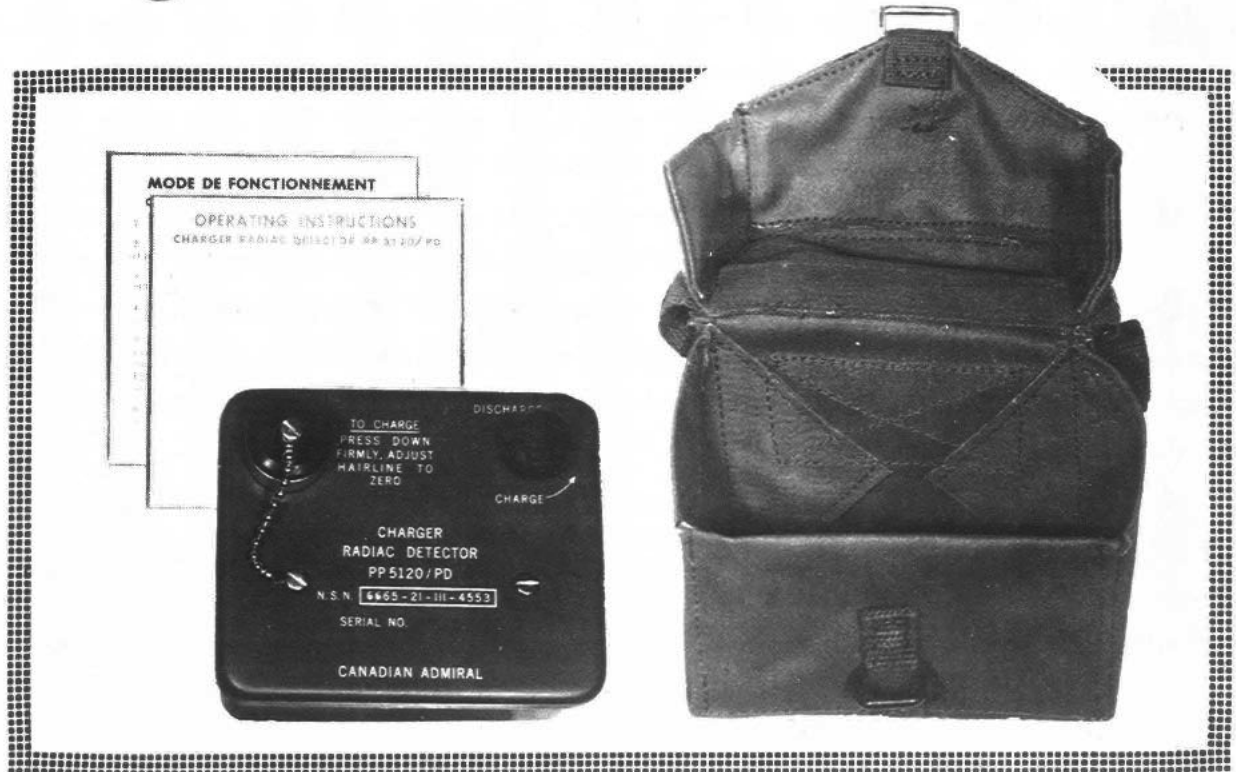
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Serial 142-3-2

EQUIPMENT CHARACTERISTICS SHEET

for

CHARGER, RADIAC DETECTOR,
PP5120/PD



ROLE: Designed for the charging of Canadian and US Military,
Quartz Fibre Dosimeters.

CLASSIFICATION: Standard "B"
Ordnance Stock No. 6665-21-111-4553

MANUFACTURED BY: Canadian Admiral Corporation, Ltd.

PHYSICAL CHARACTERISTICS: Weight - 1-1/2 lbs (including battery)
Length - 4-1/2 inches
Width - 3-3/4 inches
Depth - 1-7/8 inches

POWER SOURCE: 1 - 1-1/2 Volt BA-30 Dry Cell

ANCILLARY ITEMS:

- (a) Operating and Maintenance Instructions

Printed on a plastic coated card, both French and English versions are provided.

- (b) A Carrying Case

Made of vinyl impregnated cotton fitted with a belt loop and shoulder carrying strap.

GENERAL DESCRIPTION: The charging electrodes are carried on a spring loaded pedestal mounted in a well. A built-in light source is provided for dosimeter scale illumination. A DC potential is provided at the charging electrodes from a transistor oscillator circuit, sealed in a silastic module. The potential is variable between 80 and 250 volts by adjustment of a potentiometer with an external control knob.

REFERENCES: 7610-21-112-3320 - Sheet Technical Operating & Maintenance Instructions, Charger Radiac Detector PP 5120/PD.

RESTRICTED

Serial

143-5-0

EQUIPMENT CHARACTERISTICS SHEET

for

RADIACMETER TECHNICAL DOSIMETER IM 5002/PD



ROLE:

This is an instrument used for measuring the cumulative amount of X-ray and gamma radiation received by the wearer.

CLASSIFICATION

Standard "B"
NATO Stock No. 6665-21-101-4439

PHYSICAL CHARACTERISTICS

Weight	1-1/4 ozs
Range	0-10 roentgen

DIMENSIONS

Length	4-13/32 ins
Diameter	17/32 ins

CHARGING VOLTAGE

No more than 180 volts

COLOUR

Olive drab

MANUFACTURED BY

Bendix Aviation Corporation, USA

GENERAL DESCRIPTION

This dosimeter is a hermetically sealed, rugged instrument about the size of a fountain pen. It contains an extremely sensitive quartz fibre type voltmeter suspended in a small ionization chamber. The meter may be read at anytime by looking at a source of light through the eyepiece end of the instrument. The position of the quartz fibre is measured against a built-in scale.

Each instrument is equipped with an alligator-type pocket clip and a protective cap to prevent damage to instrument when handled.

A standard radiac charger such as the Victoreen Model 561 or PP5120/PD is used to charge the dosimeter.

REFERENCES

Specification MIL-R-19539
CAEMI ELEC G-100

RESTRICTED

Serial

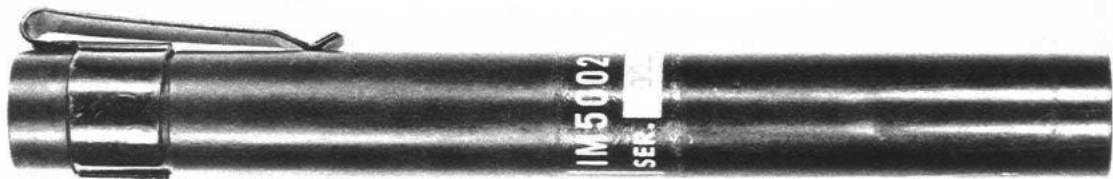
143-5-1

EQUIPMENT CHARACTERISTICS SHEET

for

RADIACMETER TECHNICAL

DOSIMETER IM 5002A/PD



ROLE:

This is an instrument used for measuring the cumulative amount of X-ray and gamma radiation received by the wearer.

CLASSIFICATION:

Standard "A"
NATO Stock No. 6665-21-104-4836

MANUFACTURED BY:

Computing Devices of Canada Ltd. Ottawa

ARMY EQUIPMENT ENGINEERING ESTABLISHMENT - OTTAWA, CANADA

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PHYSICAL CHARACTERISTICS

Weight 1-1/4 ozs
Range 0-10 roentgens

DIMENSIONS

Length 4-13/32 ins
Diameter 17/32 ins

CHARGING VOLTAGE

No more than 180 volts

COLOUR

Black

GENERAL DESCRIPTION

This dosimeter is a hermetically sealed, rugged instrument about the size of a fountain pen. It contains an extremely sensitive quartz fibre type voltmeter suspended in a small ionization chamber. The meter may be read at anytime by looking at a source of light through the eyepiece end of the instrument. The position of the quartz fibre is measured against a built-in scale.

Each instrument is equipped with an alligator-type pocket clip and a protective cap to prevent damage to instrument when handled.

A standard radiac charger such as the Victoreen Model 561 or PP5120/PD is used to charge the dosimeter.

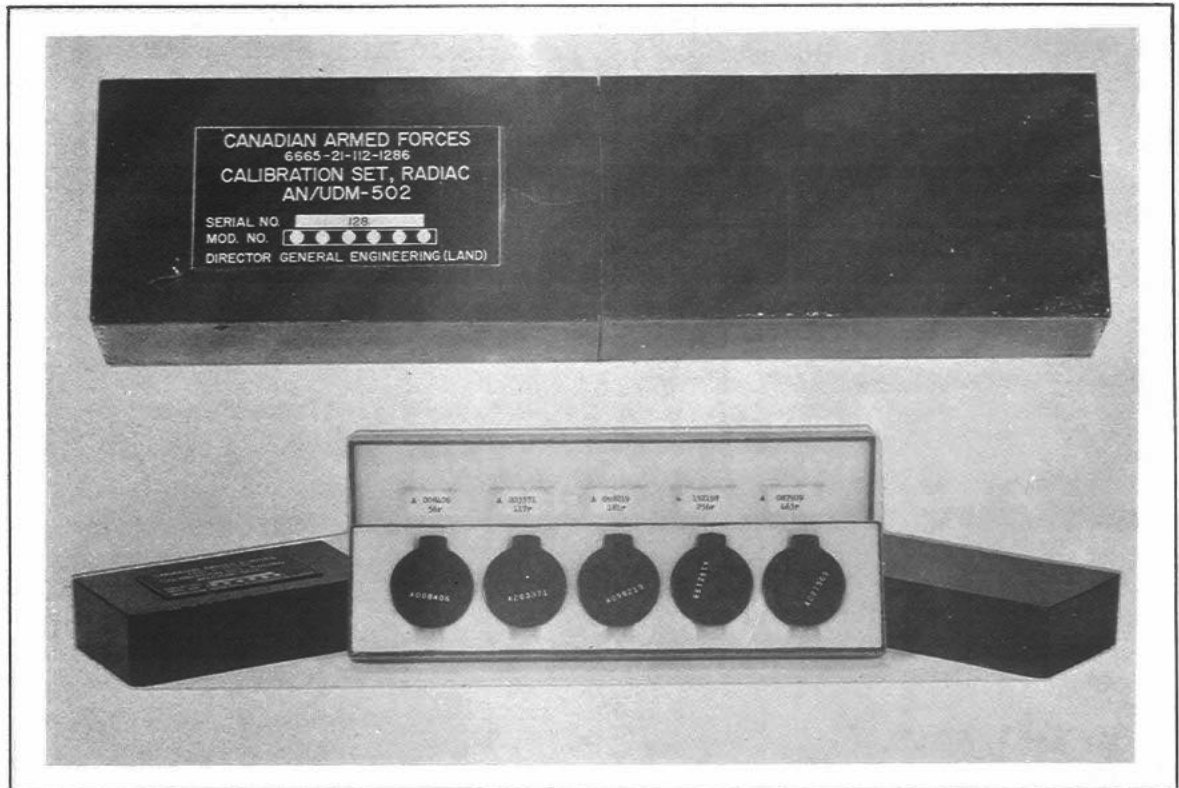
REFERENCES

Specification CA-A122
CAEMI Elec G-100
AEEE Project 61-651

EQUIPMENT CHARACTERISTICS SHEET

for

CALIBRATION SET, RADIAC, AN/UDM-502



ROLE: The Calibration Set, Radiac AN/UDM-502 is used to calibrate the Computer-Indicator Radiac Tactical Dosimeter Reader CP-95A/PD.

CLASSIFICATION: Standard A.

MANUFACTURER: Canadian Forces.

STOCK NUMBER: 6665-21-112-1286.

PHYSICAL DATA:

Length	Width	Depth	Weight
10 in.	3 in.	1.5 in.	12 oz.

GENERAL DESCRIPTION:

The AN/UDM-502 consists of a set of five Tactical Radiac Dosimeters DT60A/PD each of which has received an accurately determined dose of gamma radiation. Each set is packaged in a polyethylene foam lined fibreglass case. A cut-out section in the lining of the lid shows the serial number and radiation dose of each dosimeter.

REFERENCES:

Calibration Procedure CP95A/PD - CA EME Manual.
Equipment Characteristics Sheet Serial 144-1-0.

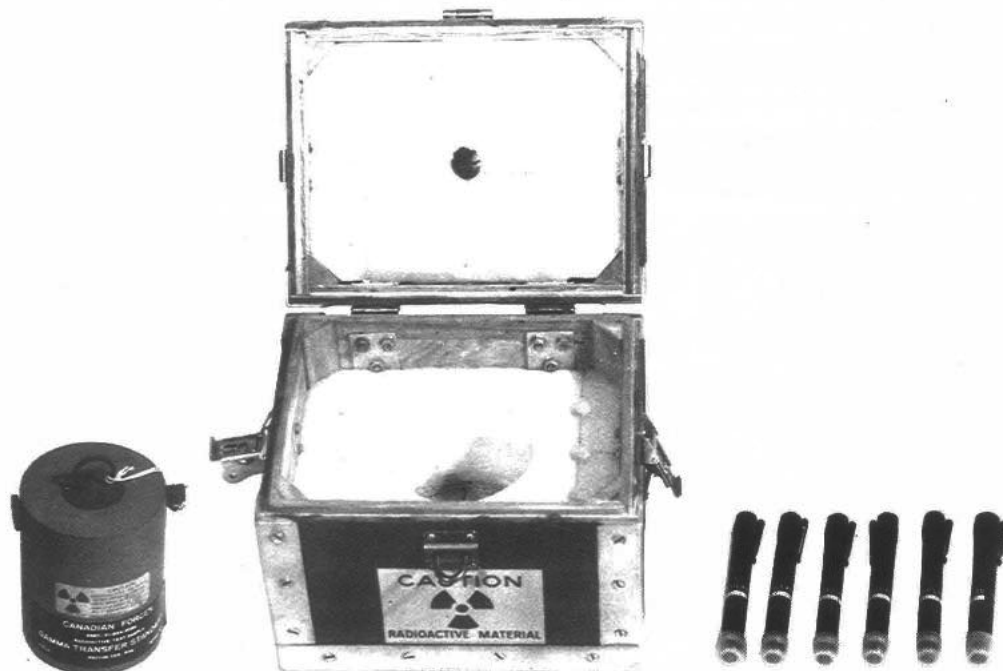
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EQUIPMENT CHARACTERISTICS SHEET

for

TEST SET, CALIBRATOR TS - 5071



ROLE: The TEST SET, CALIBRATOR TS-5071 is used to check the accuracy of a Field Calibrator Set, eg., Calibrator Set, Radiac AN/UDM-501(V).

CLASSIFICATION: Standard A.

STOCK NUMBER: 6665-21-845-3506

MANUFACTURER: The Radium Transfer Standard in this set is manufactured by The Victoreen Instrument Co., Cleveland, Ohio, USA, and is their Model 540B modified to meet Canadian requirements.

DIRECTOR GENERAL ORDNANCE SYSTEMS - OTTAWA, CANADA

COMPONENTS:

Stock No.	Item	Dimensions	Weight	Qty
6665-21-844-8398	Radioactive Test Sample, Gamma Transfer Standard, Radium 226, 2 mg	3-1/2 in. dia., 5-1/2 in. high	19 lbs	1
6665-21-104-4836	Radiacmeter, Technical Dosimeter, IM-5002A/PD	17/32 in. dia., 4-13/32 long	1-1/4 oz. (each)	6
8115-21-845-1600	Shipping and Storage Container, Calibrator Set Radiac, Test Set	9 in. long 7 in. wide 7-3/4 in. high	6 lbs, 10 oz.	1

GENERAL DESCRIPTION: The Test Set comprises a steel cylinder which contains an encapsulated radioactive source of 2 milligrams of radium 226 deposited on aluminum foil. An aluminum adapter sleeve is fitted within the source where a dosimeter can be placed accurately with respect to the source. The cylinder is fitted with a steel plug-type lid and provided with a steel bar keeper to retain the lid in position when the source is not in use. The set is housed in a rugged shipping and storage container.

The dosimeters are used to obtain mean readings after exposure to the field of the standard. The dosimeters are then exposed to the field of the calibrator being checked and the mean readings obtained. After applying the necessary correction factors it is then possible to determine the accuracy of the calibrator being checked within $\pm 2\%$ at ambient temperature and pressure. Detailed instructions for use are issued with the kit.

REFERENCES:

DARME Sub-Project L10055-61-668 TD 538/65.
Technical Data Schedule 371241.

EQUIPMENT CHARACTERISTICS SHEET

for

**CALIBRATOR SET, RADIAC,
AN/UDM-501 (V)**



ROLE:

The Calibrator Set, Radiac, AN/UDM-501 (V) is used to check the calibration of radiacmeters after repair and on periodic inspection. The suffix "(V)" in the nomenclature indicates a variable composition of the set since holders are added when new radiacmeters are brought into service.

Included in the set are holders for the following radiacmeters:

IM-5016/PD; IM-108A/PD; IM-108B/PD;
"MINIRAD"; 440 RF
CDV 700; AN/PDR-27J, AN/PDR-60
IM-5002A/PD; IM-5006A/PD; IM-5013/PD; IM-5015/TD.

CLASSIFICATION: Standard A

STOCK NUMBER: 6665-21-114-7813

MANUFACTURER: Canadian Forces

PHYSICAL DATA:

8115-21-845-1601 - Shipping and Storage Container, Calibrator Set Radiac, Jigs.

Length	Width	Height	Weight
24 in.	12 in.	32 in.	*

* 150 lbs with contents.

6665-21-114-7814 - Calibrator, Radiac, TS-5056/UDM-501 (including filters and cover).

Diameter *	Height	Weight
12 in.	10 in.	140 lb



* including handles

GENERAL DESCRIPTION:

The AN/UDM-501(V) consists of a 200 mc Caesium 137 radioactive source in a shielded shipping container, two filters, and a cover. The filters and cover when fitted are held in place by a keeper bar locked to a loop on the outer side of the container to keep the calibrator package intact and to comply with the regulations for handling and transporting radioactive materials.

A series of holders and jigs for the various radiacmeters, and certain ancillary devices to aid calibration procedures are stored in a steel-framed wooden box suitable for shipment and for use in vehicle or workshop roles.

The set has two radiation warning signs that are stowed in the box when not in use.

REFERENCES:

File Project L 10055-61-665.
Specification CF-C-383 - Calibrator.
Specification CF-R-388 - Source.
Technical Data Schedule 368002, 368003, 382455.
Equipment Issue Scale 9226.
Regulations for the Safe Use of Radioactive Materials - CFAO 34-24.

RESTRICTED

Serial 144-3-3

EQUIPMENT CHARACTERISTICS SHEET

for

CALIBRATOR, RADIAC, TS-5050/TD



ROLE: The Calibrator Radiac TS-5050/TD is used to Calibrate the Radiac Remote Monitor, Single Probe IM-5015/TD.

CLASSIFICATION: Standard A.

STOCK NUMBER: 6665-21-114-7851.

PHYSICAL DATA:

Height	Diameter	Weight
12 in.	10 in.	45 lbs

MANUFACTURER: Canadian Forces.

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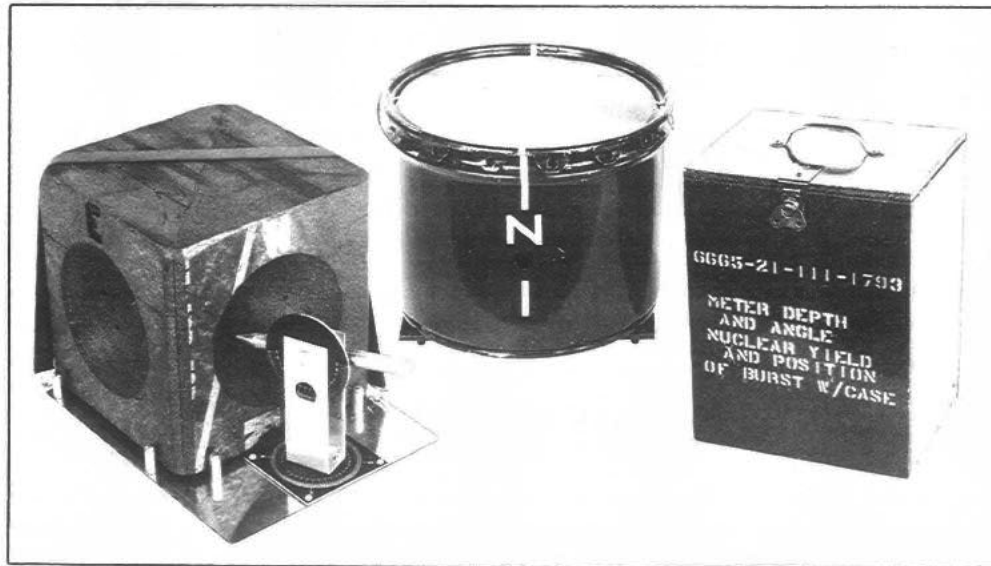
GENERAL DESCRIPTION: The TS-5050/TD contains 100 mc of Caesium 137, shielded by two cylinders of solid depleted uranium. The upper uranium cylinder contains the radio active source, and is housed in a steel positioning sleeve. The shielding material and the radioactive source are positioned in the centre of the container by a wooden block. When the container is closed, the metal keeper bar forces the lid against the sleeve handle and holds the sleeve containing the radioactive source securely. For use the positioning sleeve which contains the radioactive source is lifted out of its container and placed over the remote detector of the IM-5015/TD.

REFERENCES:

Calibration Procedure for IM-5015/TD - CA EME Manual, Electrical Y331/1.
Specification CA-0-226.
Engineering Report AEEE-40.

EQUIPMENT CHARACTERISTICS SHEET

INDICATOR, NUCLEAR YIELD AND POSITION OF BURST, ID 5035/U



DESCRIPTION

The ID 5035/U Indicator is intended for use in measuring thermal energies of nuclear explosions and the position of these explosions relative to the equipment. The ID 5035/U comprises a Sensing Element, a Container, a Mounting Platform, and a Depth and Angle Meter with its Carrying Case.

The Sensing Element is an 8-inch cube of black polyester foam with a hemispherical cavity in the four vertical sides marked N, E, S, and W respectively (representing North, East, South, and West). The Container is a circular canister with positioning fixtures for the Sensing Element and bolts for levelling the Container when attached to the Mounting Platform. Four apertures are provided in the wall of the Container; these are spaced 90 degrees apart and are marked N, E, S, and W. The Container is fitted with a cover held on with four springs. The Mounting Platform is a T-shaped plate provided with holes for the levelling bolts on the container. Welded to the Mounting Platform is a pipe flange threaded to fit a 2-inch pipe post. This flange is provided with a set screw. The Depth and Angle Meter is a measuring device consisting of a metal base with four locating pins and an adjustable spring loaded, azimuth and elevation pointer with calibrated scales related to fixed vertical and horizontal locating surfaces.

After exposure to a nuclear explosion, the Sensing Element is removed from the Container and mounted in the meter against the locating pins, with the exposed cavity adjacent to the pointer. The pointer is a blunt-nosed probe for measuring the depth of the depression in the

DIMENSIONS AND WEIGHT

(ove

LENGTH
8 in

WIDTH
11-3/4 in (dia) 4-1/2 in

HEIGHT
9 in 11 in

WEIGHT
27 lb

DIRECTOR GENERAL ORDNANCE SYSTEMS

CANADIAN FORCES HEADQUARTERS - OTTAWA, CANADA

cavity, the azimuth, and the angle of elevation or depression. These measurements are reported to the Provincial Warning Centre (PWC) for evaluation. The depth of the depression is directly proportional to the yield of the burst. The height of burst is computed from the known height of each post and the reported angle of elevation or depression. Three or more azimuths plotted on a map indicate location of "ground zero".

STOCK NUMBER: 6665-21-111-1790

CLASSIFICATION: Standard B

EQUIPMENT CHARACTERISTICS SHEET

for

**RADIACMETER, GAMMA SURVEY,
LOW RANGE, IM 5016/PD**



ROLE: A survey meter for use in the Canadian Forces and National Survival Role.

CLASSIFICATION: Standard A
NATO Stock No. 6665-21-111-9095

DESIGNED BY: AECL and AEEE (based on AEP 2153 circuit)

RANGE: 0 - 100 mr/hr (low range)
0.1 - 10 r/hr (high range)

POWER SOURCE: Battery, dry, BA-1100/U, NATO Stock No. 6135-21-112-6683

MAXIMUM POWER DRAIN: 8 milliamps at 6.5 volts, nominal.

PHYSICAL CHARACTERISTICS: Length 9-1/8 ins.
 Height 4-1/2 ins.
 Width 4-1/2 ins.
 Weight 3 Lbs. 10 oz. in operating condition

GENERAL DESCRIPTION: The equipment consists of a Geiger-Mueller tube detector and an indicating element housed in an aluminum alloy case. The detector consists of a low range GM tube No. 18506, and a high range GM tube No. 18529, (both produced by Philips). The regulated power supply and the ratemeter circuit are entirely solid state. The equipment is fully ruggedized and immersion proof. There is a single control for all functions. The equipment is carried on a web strap attached to "D" rings on the case.

REFERENCES: AEEE Specification CA-R-236 Issue 1
Project 61-651
CD 7811-367927
GEN-72 (7610-21-114-6612)

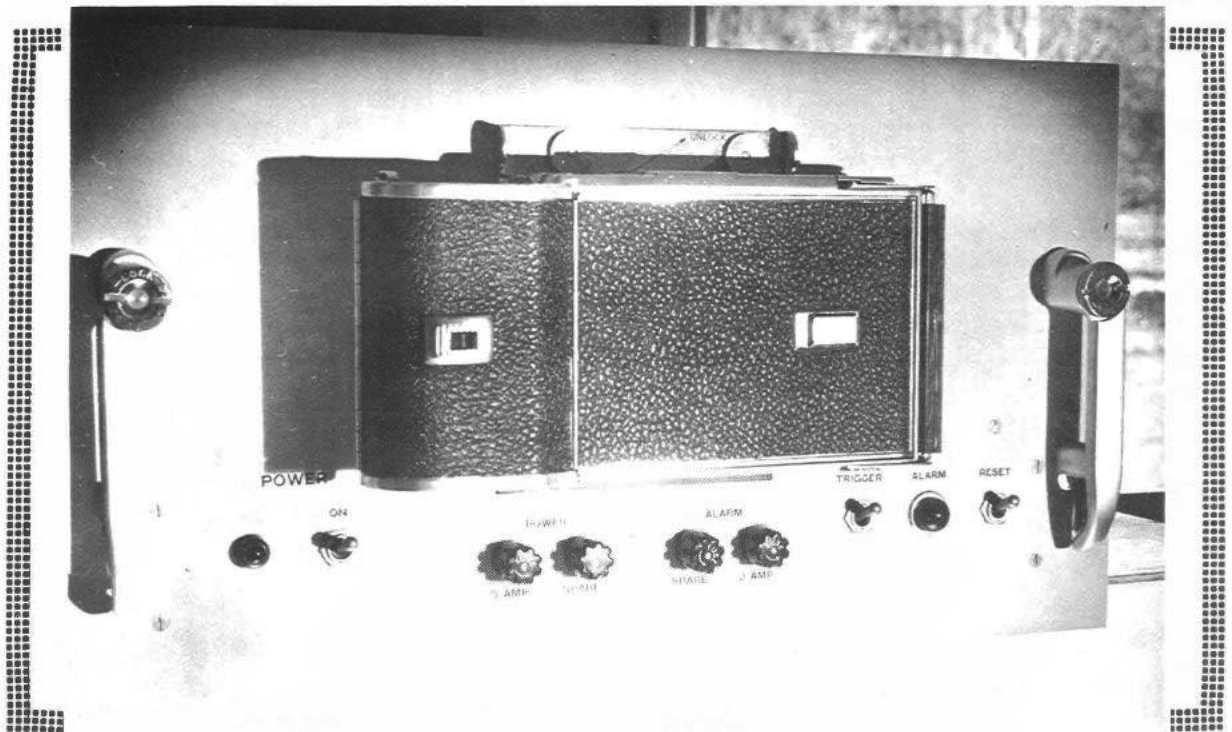
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Serial 144-7-0

EQUIPMENT CHARACTERISTICS SHEET

for

RECORDING SET, LIGHT-TIME,
(Bhangmeter) AN/FSH 501



ROLE: To produce a photographic record of the yield of a nuclear detonation.

CLASSIFICATION: Standard "A"
Ordnance Code No. 6695-21-111-1912

PHYSICAL CHARACTERISTICS:

Detector - Maximum diameter: 9-1/2 inches
- Principle diameter: 8-3/4 inches
- Height above top of pipe
(not including flange): 15-3/8 inches
- Weight (including flange): 29 lbs 13 ozs

Indicator - Height: 10-1/2 inches
Width: 19 inches
Depth: 24 inches
Weight: 74 lbs 5 ozs

Cable - 1/2 inch diameter x 100 feet in length
- Weight: 24 lbs 9 ozs

NOTE: Cable diameter does not include connectors which require approximately 2 inch diameter clearance hole (Amphenol MS-310b)

POWER SUPPLY: 115 volt 60 cycle 150 watts

GENERAL DESCRIPTION: It is a photographic recording device to be located within visible range of areas constituting probable targets for nuclear weapons and to give information concerning the yield of the nuclear detonation.

The equipment consists of a sensing head connected by cables to a recording system. The sensing head consists of a unit comprising a number of photo cells arranged so as to explore the area surrounding the location of the unit. The sensing head will be in an exposed location. The recording system consists of an oscilloscope with a time-scale indicator with camera attachment for permanently recording the CRT trace produced by the current from the sensing head. The recording system must be located in a protected location.

REFERENCES: AEEE Project 61-591

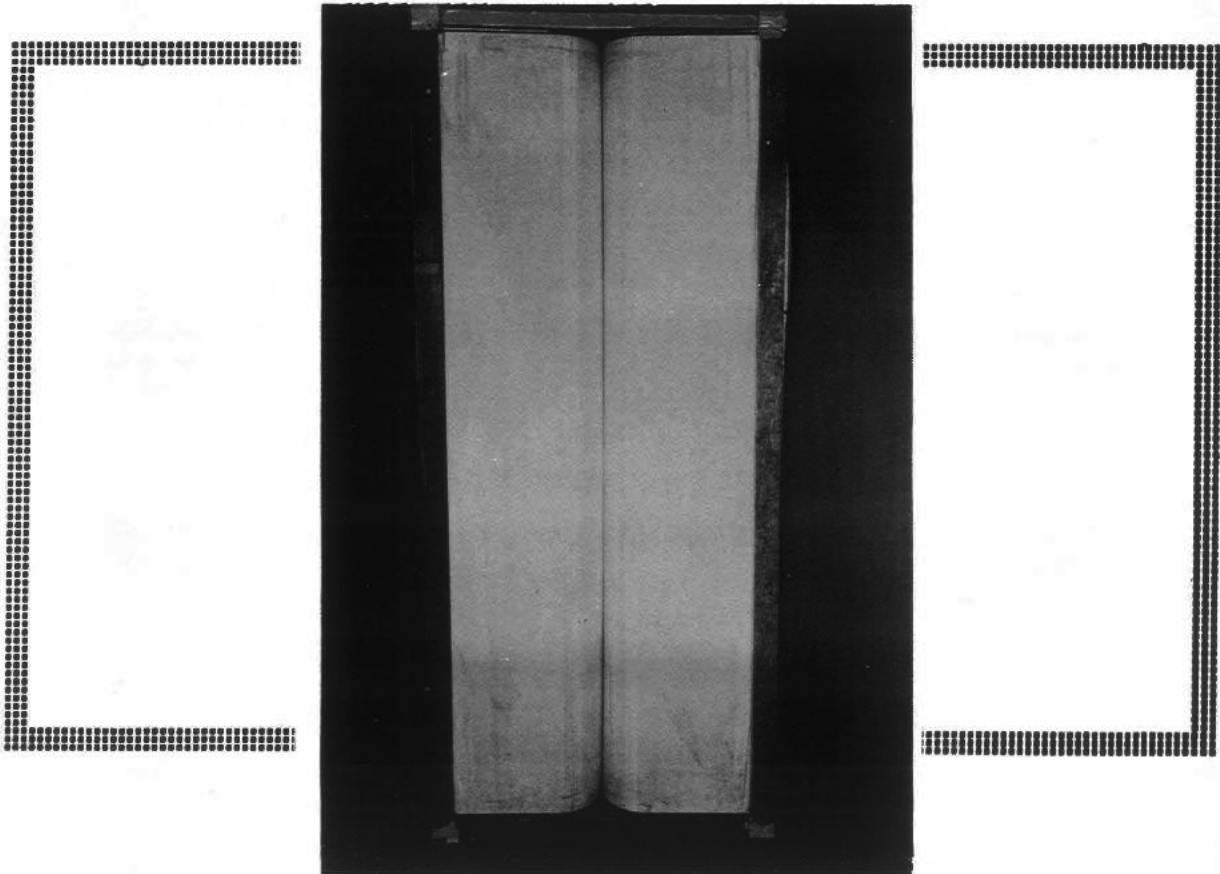
RESTRICTED

Serial 146-3-1

EQUIPMENT CHARACTERISTICS SHEET

for

**DOOR, PERMEABLE MEMBRANE,
Protective Shelter, M-1**



ROLE

This equipment is designed for use in a 3 by 7 foot doorway or corridor which forms a part of the decontamination chamber entry system in a chemical, biological or radiological (CBR) protective shelter.

ARMY DEVELOPMENT ESTABLISHMENT

O t t a w a - C a n a d a

Issue 1

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Date 6 Feb 61

MANUFACTURED BY

Canada

WEIGHT

39 lbs (shipping weight)

DIMENSIONS

Height - 7 ft

Width - 3 ft

GENERAL DESCRIPTION

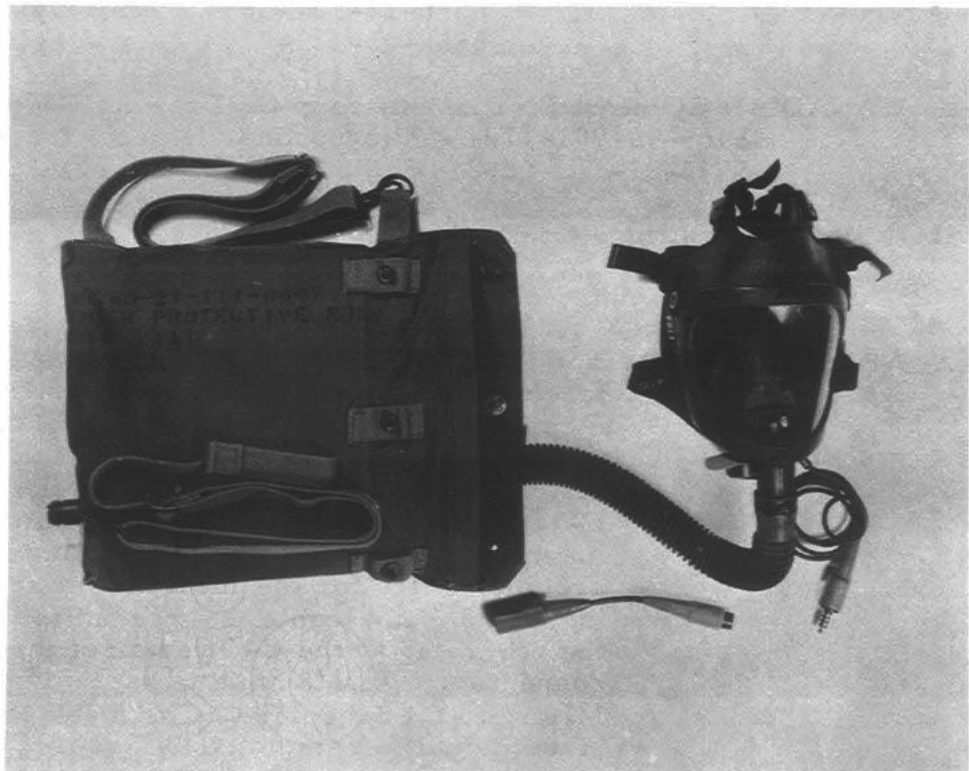
The M1 Door consists essentially of two elastic panels mounted in semi-circular holding rings that are part of a door frame assembly which is bolted to steel angles on each side of the doorway. The two door panels are made of one-way stretch elastic webbing composed of rubber, rayon and cotton. These panels are provided with reinforcing strips at the top and bottom edges through which the holding rings are passed when the door is installed. The panels are cut so that when properly hung the surfaces at the centre which form the air seal are under tension causing both sections of the door to remain in close contact vertically thereby providing an effective porous barrier. Each door section is provided with frame assemblies for the top and bottom together with holding rings, two hinges and a strap. Clip angles, snap fasteners and necessary nuts and bolts are supplied to complete the assembly which when installed completely fills the 3 ft by 7 ft doorway that is part of the standard protective shelter. When installed this doorway functions as a conventional door but allows air under low pressure to flow through slowly.

REFERENCES

Operator, Organizational Field and Depot Maintenance Manual
TM 3-4240-225-15
ADE Drawing Schedule 352672

EQUIPMENT CHARACTERISTICS SHEET

for MASK, PROTECTIVE, NBCW, M14 (C1A1)



ROLE: The mask, protective, NBCW, M14 (C1A1) is used with the M10A1 canister and the M2A1 (C1A1) air purifier to provide protection from NBCW agents, for the respiratory tract, face, and eyes of crews in armoured vehicles.

CLASSIFICATION: A

STOCK NUMBERS: 4240-21-112-3591 - Mask Protective NBCW, M14(C1A1) Large
4240-21-111-8447 - Mask Protective NBCW, M14 (C1A1) Medium
4240-21-111-8446 - Mask Protective NBCW, M14 (C1A1) Small

MAJOR COMPONENTS: Facepiece, NBCW Protective Mask, M14 (C1A1).

Stock No. 4240-21-116-9418 - Large.

4240-21-116-9419 - Medium.

4240-21-116-9420 - Small.

4240-00-127-7186 - Canister, NBCW Protective Mask, M10A1.

4240-00-300-6457 - Coupling, Canister, M1.

4240-00-300-6383 - Carrier, Field Protective Mask, M13.

4240-21-111-7757 - Carrier, M10A1, Canister.

4240-00-300-6458 - Hose, M8.

6850-21-104-3694 - Antifogging Kit, MK6 or

6850-00-127-7193 - Antifogging Kit, MIL-S-13550.

SPECIAL CANADIAN COMPONENTS: Nosecup C2 Drawing D375769.

5965-99-901-1184 - Microphone element, magnetic, 300 ohm.

5995-21-112-0282 - Cable assembly, special purpose, electrical.

DIMENSIONS: See Drawings C5-2-814, and D356829.

Packaging data: 6 to a box, 60 lb, 2.6 cu. ft.

GENERAL DESCRIPTION: The facepiece of the M14 (C1A1) mask is a molded rubber faceblank with a large flexible plastic eyepiece. The eyepiece is cemented into the faceblank and measures 7-1/2 in by 5-1/2 in to provide maximum unobstructed vision. The nosecup C2 is a modified version of the US E-11, and accomodates the Canadian microphone element, magnetic, 300 ohm, YA8549. A molded insert in the mask provides entry for the insulated microphone cable. The inner end of the cable is attached to the microphone, and the other end to the C42 radio set through a quick-release connector. The M8 hose is used to connect the canister M10A1 to the facepiece. The mask is supplied in three sizes: small, medium, and large. The small and the medium size masks have normal size nose cups; the large size mask has a large nosecup.

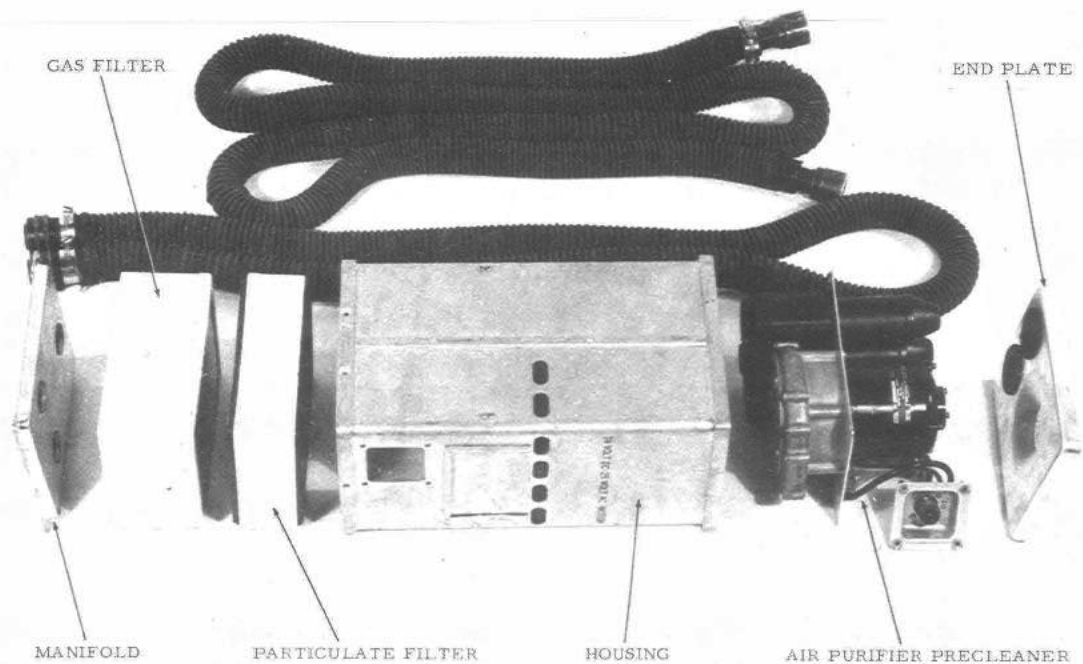
REFERENCES: US Army Technical Manual TM 3-4240-221-15.

DGEL Engineering Report AEEE-77.

DAEL 4 Project 58-253.

Specification MIL-M-14329.

US Chemical Corps Drawing C5-1-265.

EQUIPMENT CHARACTERISTICS SHEET*for***PURIFIER, AIR, M2A1 (C1A1)**

ROLE: The purifier is designed to be used with the mask, protective, tank, M14C1A1 to provide complete NBCW respiratory protection for crews in armoured vehicles. The filter unit may also provide air purification by removing dust and odour components of gun fumes from influent air, but does not provide protection from carbon monoxide.

CLASSIFICATION: A

STOCK NUMBER: 4240-21-111-8450.

MANUFACTURER: W. R. Elliott Ltd.,
Kitchener, Ontario.

MAIN COMPONENTS: 1. Purifier, Air, M2A1. In metal housing 13" x 7-1/2" x 6".
consisting of:

- (a) Precleaner, Air Purifier M1A1.
A motor blower assembly consisting of a 3-1/3" centrifugal fan, with a 12,000 rpm, 24 volt ac/dc motor, and a twin cyclone dust separator.
- (b) Filter, Particulate, 12 CFM, M13.
A replaceable dust and aerosol filter of type 6 paper pleated around separators in a metal frame.
- (c) Filter, Gas, 12 CFM, M12A1.
A replaceable gas filter containing ASC charcoal, faced with perforated aluminum.

ASSOCIATED EQUIPMENT: 1. Hose, 9 ft. Stock No. 4240-00-093-5501.
Hose, 6 ft. Stock No. 4240-00-093-5502.

2. Mask, Protective, Tank, M14 C1A1, or M14.

3. Installation Kit, Gas-Particulate Filter Unit. Separate Kits for:

- Centurion Tank, ARV - Stock No. 4240-21-111-8642.
- Centurion Tank, Turret, Canada - Stock No. 4240-21-111-8642.
- Centurion Tank, Europe - Stock No. 4240-21-112-3599.
- Centurion Tank, AV, Hull - Stock No. 4240-21-112-3600.
- Ferret Scout Car - Stock No. 4240-21-111-8641.

PHYSICAL CHARACTERISTICS: Weight - Air purifier assembly - 20-1/4 lb.
Hose assembly 6-foot - 3-1/4 lb.
Hose assembly 9-foot - 5-1/2 lb.

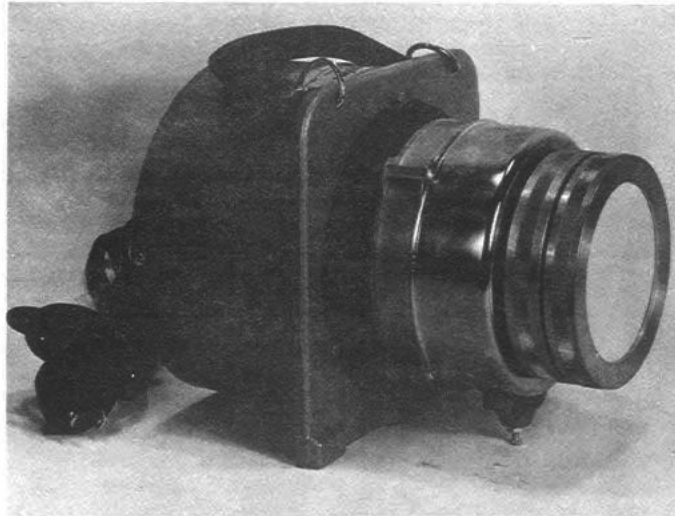
DIMENSIONS: Air purifier assembly - 13" x 7-1/2" x 6".
Hose i. d. - 7/8".

GENERAL INFORMATION: The tank filter unit supplies purified air to a maximum of three men. It is designed primarily for use in tanks and other armoured vehicles. One or two filter units are installed in armoured vehicles, depending upon the number of men in the crew (one unit for up to 3 men, and 2 units for 4-man crews).

REFERENCES: ER AEEE-77.
ABC-ARMY-STD-93.
DAEL PROJECT 6016-58-253.
AEEE Schedules 356817.
356816.
356815.
356814.

EQUIPMENT CHARACTERISTICS SHEET

SAMPLER, AIR, HIGH VOLUME



DESCRIPTION

The air sampler is used to collect particulate matter from calculated volumes of air when contamination is suspected due to a nuclear accident.

It is a portable instrument consisting of a 24 volt DC heavy duty motor with a rated horsepower of .49 at 15600 rpm, a pump assembly, a filter assembly, a gauge plate and a pressure indicator gauge.

A cast aluminum housing contains the motor, a pressure indicator gauge and a gauge plate.

The stainless steel pump assembly is attached to the housing, and comprises a fan housing assembly, an intake orifice and a two stage suction fan. (Cont'd on reverse side.)

REMARKS

Power Source: Generator Set 28.5 Volts DC - Stock No. 6115-21-812-2341.

Accessories: Tripod - Stock No. 6760-21-100-8242.

Filter Paper TFA #41 - Stock No. 6640-21-806-5225.

INFORMATION SOURCE

DGOS 130 Operators Instructions AN/PDR-60 Radiac Set.

EO 30A-25AA-2. Canadian Forces Publication (CFP) 138.

DIMENSIONS AND WEIGHT

LENGTH	WIDTH	HEIGHT	WEIGHT
9-1/2 in.	8 in.	8 in.	10 lb

DIRECTOR GENERAL ORDNANCE SYSTEMS

CANADIAN FORCES HEADQUARTERS - OTTAWA, CANADA

DESCRIPTION (Cont'd)

The filter assembly is attached to the pump assembly and comprises a machined aluminum filter holder and a hard surface filter paper. The filter paper is extremely efficient in collecting particulate matter varying in diameter from 1/100 micron to 10 microns. The filter paper is measured for radioactive contamination (Alpha) with an AN/PDR-60 Radiac Set.

The pressure indicator gauge is a variable, indirect orifice meter, mounted on the gauge plate. It indicates the pressure drop across the standard intake orifice and an orifice in the cast aluminum housing. A reduction from normal airflow of 20 cfm indicates that particles are being collected on the filter.

Manufacturer: The Staplex Company, Brooklyn, N. Y., USA.

Model No: TFl A-4.

STOCK NUMBER: 6665-21-840-2349.

CLASSIFICATION: Standard A.

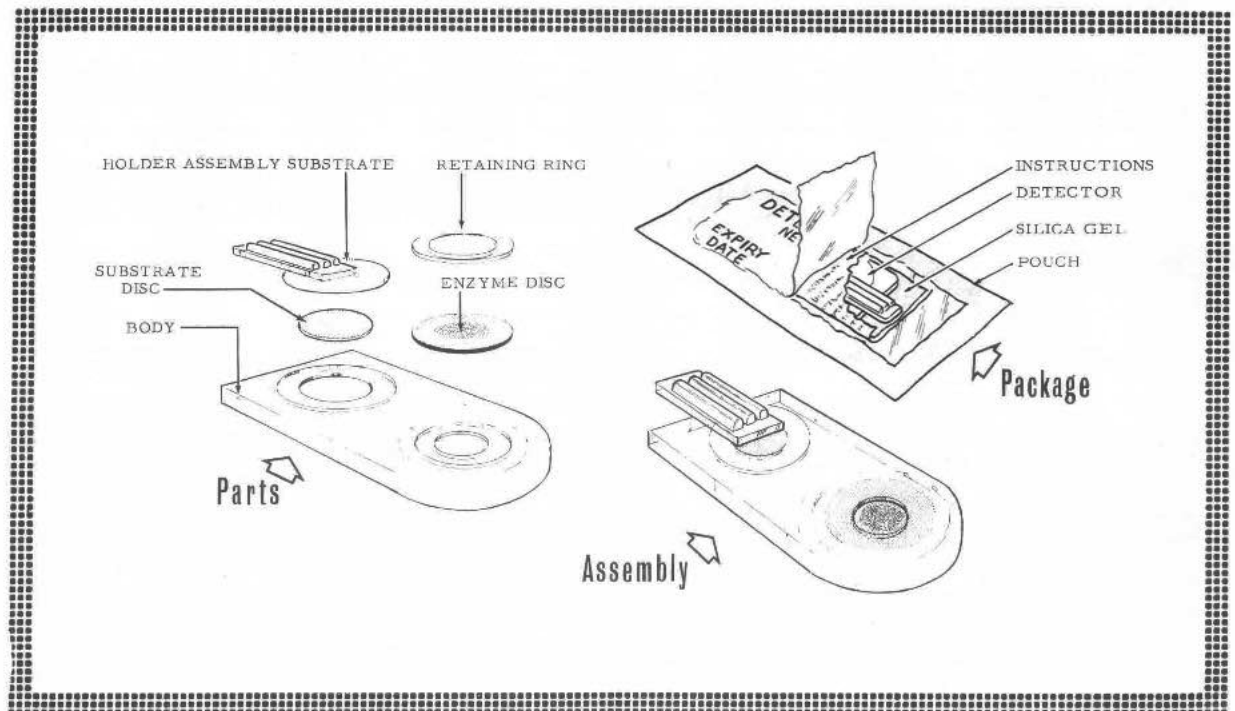
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Serial 148-1-0

EQUIPMENT CHARACTERISTICS SHEET

for

DETECTOR, CHEMICAL AGENT
Nerve Vapour



ROLE:

To provide a nerve agent vapour detector for use by personnel in the field.

CLASSIFICATION: Standard B

NATO Stock No. 6665-21-111-9680

MANUFACTURED BY:

Penick Canada Ltd

DIRECTOR GENERAL ORDNANCE SYSTEMS - OTTAWA, CANADA

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PHYSICAL CHARACTERISTICS

PLASTIC HOLDER BODY

Length (less substrate holder handle)	2.25	in.	5.5	cm
Width	1	in.	2.5	cm
Thickness	.125	in.	.3	cm

PLASTIC SUBSTRATE HOLDER

Diameter of holder	.82	in.	2.1	cm
Thickness of holder	.085	in.	.2	cm
Length overall (including handle)	1.35	in.	3.4	cm

PACKAGED SIZE OF DETECTOR

Length	4	in. (approx)	10	cm (approx)
Width	2.5	in. (approx)	6	cm (approx)
Thickness of barrier pouch	.15	in. (approx)	.4	cm (approx)
Weight	.40	oz. (approx)	12	gm (approx)

PACKED 40 TO A CARDBOARD CONTAINER

DIMENSIONS AND WEIGHT OF PACK

Dimensions	7-1/4 in. x 5-3/4 in. x 5-1/4 in.	18.4 cm x 14.6 cm x 13.3 cm
Weight	1 lb. 4 oz. (approx)	.6 kg (approx)

GENERAL DESCRIPTION

The detector consists of two main parts comprising a body containing a bovine acetylcholinesterase-impregnated paper disc (called the enzyme disc) and a holder affixed to which is an indoxyl-salt-impregnated paper disc (called the substrate disc). When the enzyme disc is moistened, exposed to the atmosphere and then pressed into contact with the substrate disc, the enzyme disc will turn blue or green in the absence of nerve vapour. If nerve agent is present the enzyme disc will remain unchanged after contact. Colour changes of the substrate disc are not indicative of the absence or presence of nerve agent.

The detector together with an instruction sheet, printed in French and English, and a silica gel pack is packaged in a sealed vapour barrier pouch for protection against environmental conditions until required for use. Forty detectors are overpacked in a cardboard box.

The detectors have a shelf life of at least two years under ambient storage conditions. (At least one year under tropical conditions). Surveillance is continuing to determine the exact shelf life.

REFERENCE

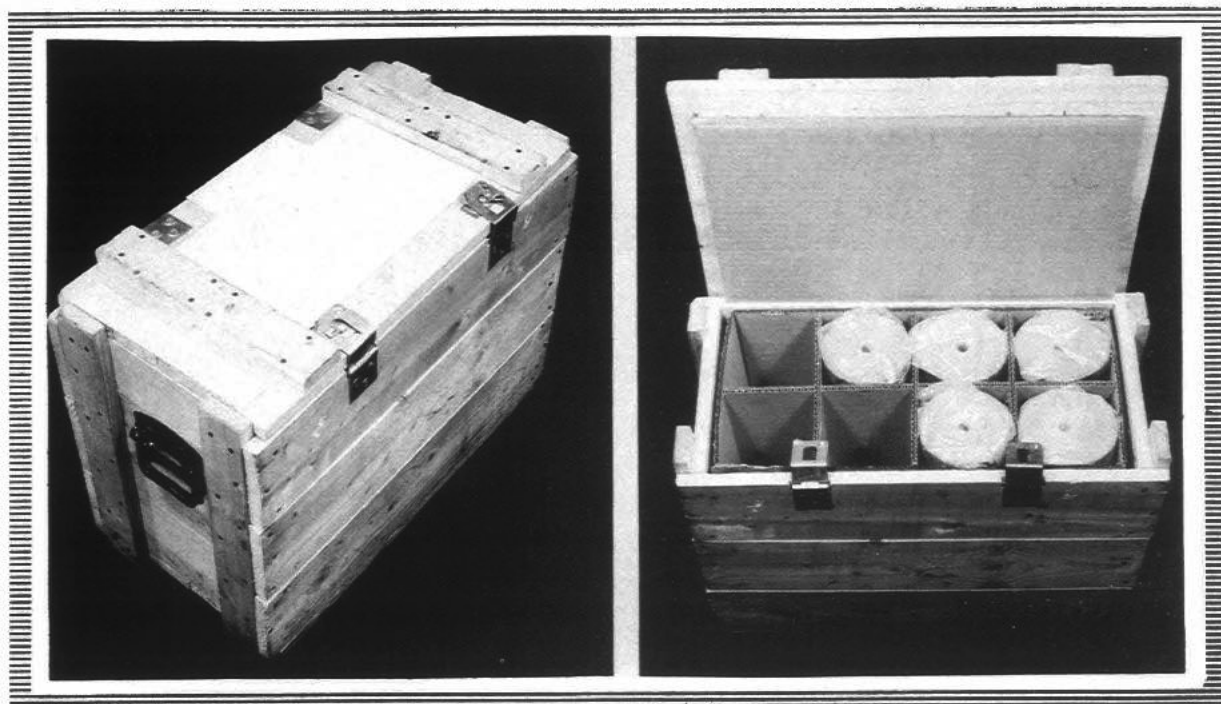
AEEE Project 63-803

Drug- 373181

PRELIMINARY DATA SUMMARY

FOR

BOX, WOOD, AMMUNITON, C12



ROLE: To provide protection and ease of handling during storage and transport of 105-MM blank ammunition.

WEIGHT:

Empty box - 10-lbs
Filled box - 75-lbs (Approx)

DIMENSIONS: (Outside)

Length - 23-ins
Width - 12-ins
Height - 17 $\frac{1}{2}$ -ins

CAPACITY OF BOX:

Cartridges Blank 105-MM C-29 - 8 rounds

ARMY DEVELOPMENT ESTABLISHMENT
O t t a w a . . . C a n a d a

GENERAL DESCRIPTION:

The box is made from 7/8-in thick board lumber nailed together and fitted with a hinged cover and provided with two carrying handles, two hasp and swivel assemblies.

The interior packing is made of double wall corrugated fibre board, partitioned for retaining the light cartridges with a bottom and top fibre board provided. Each round is packaged in a polyethylene bag which is heat sealed. A polyethylene cover is provided to fit over the mouth of the cartridge case for protection of the polyethylene bag.

SPECIFICATION NO: CA-G106

"This information is for prototype equipment and changes may be made to subsequent equipment.

PRELIMINARY DATA SUMMARY

FOR

BOX AMMUNITION SMALL ARMS (PLASTIC)



ROLE

To provide a package for storage and transporting of Small Arms Ammunition in cartons.

WEIGHT

Empty - 2 lbs 8 ozs
Filled - 35 lbs (approx)

DIMENSIONS

Length - 7-1/2 ins
Width - 7-1/2 ins
Height - 12 ins
Lid Opening - 5-1/4 ins

TYPE OF AMMUNITION PACKED

7.62-mm (NATO) ammunition

**ARMY EQUIPMENT ENGINEERING
ESTABLISHMENT**

O t t a w a . . . C a n a d a

CAPACITY

480 rds in cartons

GENERAL DESCRIPTION

The box is manufactured from linear polyethylene material. A screw cover is provided to close the box. The screw cover is provided with two lugs, diametrically opposite to receive the carrying handle.

REFERENCES

ADE Drawing No 59-444

ADE Drawing No 6016-7.62-~~ms~~

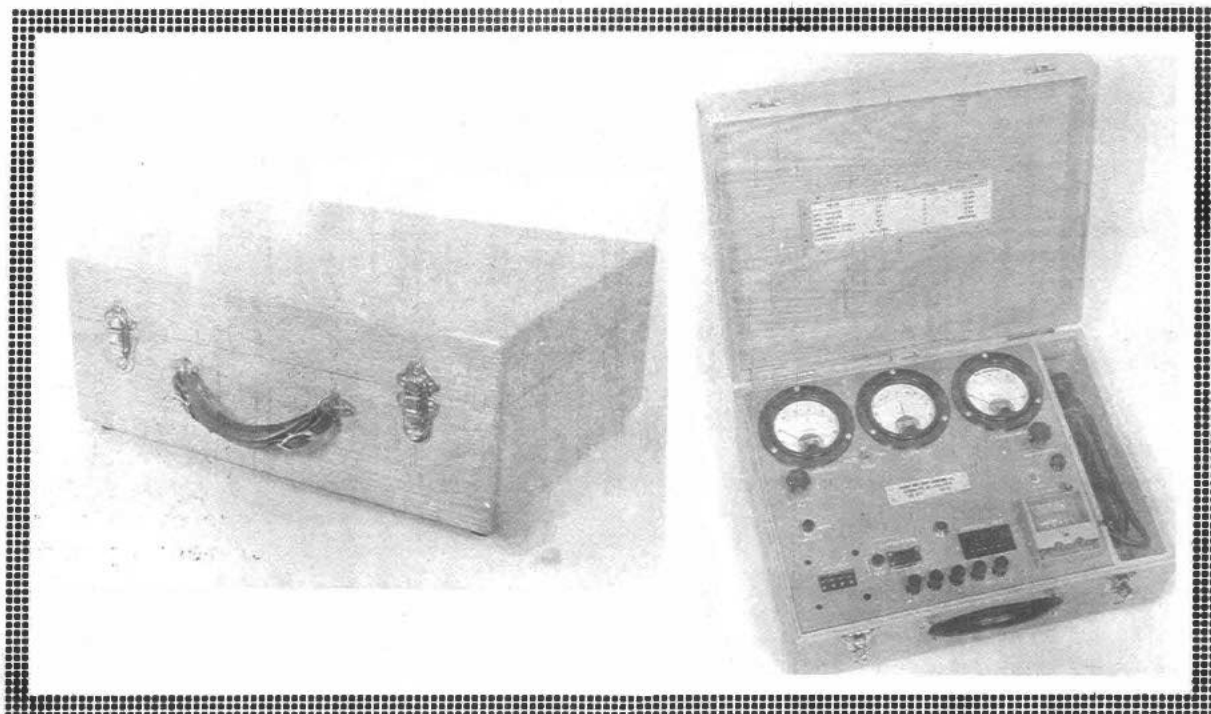
RESTRICTED

Serial 200-I-0

EQUIPMENT CHARACTERISTICS SHEET

for

TEST SET RELAY CTS-1A



ROLE:

This portable test instrument is used for testing and adjusting of telegraph relays used by the Armed Services.

CLASSIFICATION: - Standard

WEIGHT: - 23 lbs

DIMENSIONS: - 18 ins long x 13 ins wide x 6 3/4 ins high.

ARMY DEVELOPMENT ESTABLISHMENT
O t t a w a - C a n a d a

ISSUE I

RESTRICTED

Date 21 JAN 59

ANCILLARY ITEMS:

Leather tool holder containing:

1. Burnishers, contact W.E. type 265C.
2. Files, contact W.E. type KS 2662.
3. Tommy bar, offset, non-magnetic W.E. type 340.
4. Tommy bar, straight, CASEE type.
5. Screwdrivers, non-magnetic CASEE type.
6. Screwdrivers, offset, non-magnetic CASEE type.

SPARES:

Fuses, 1 amp littel-fuse type 3AG.
Lamps, pilot 6-8 V, 0.25 amp mazda no. 44.

GENERAL DESCRIPTION:

The test set is designed to operate from either 110 or 220 volt AC, 45 to 65 cycles, single phase. Test facilities provided include means for measuring winding current, percentage contact time and percentage distortion (ratio of mark to space). This instrument will test carpenter types 3 and 5, W.E. type 255 and G.P.O. types 299 AN and 320 AN. External connections are provided for connecting other types of relays and these can also be used for testing mark, tongue and space of a relay energized from external line.

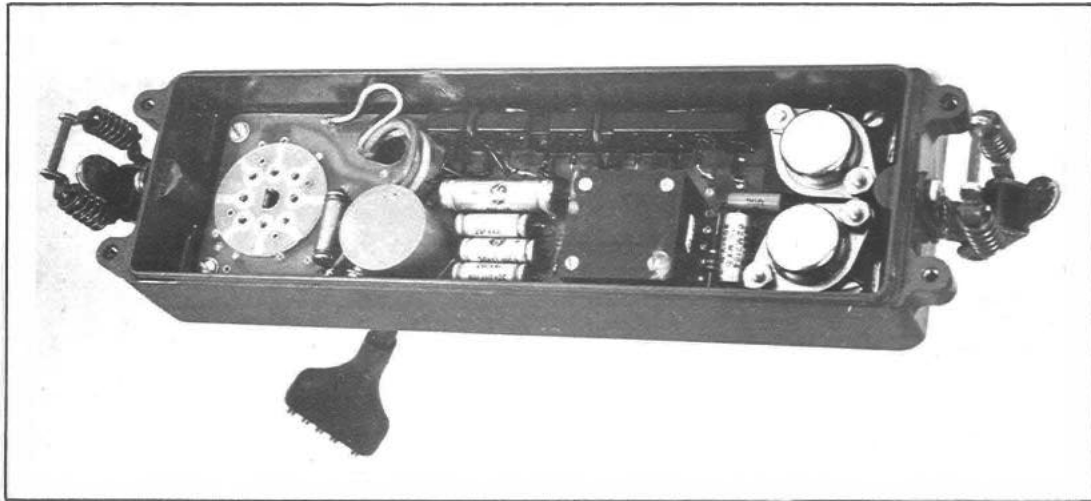
PUBLICATION REFERENCES:

Working instructions Test Set Relay CTS-1A INSTN: 182.

DRAWING: ADE No. 100293.

EQUIPMENT CHARACTERISTICS SHEET

POWER SUPPLY, ELECTRONIC, PP-5095/U



DESCRIPTION

This power supply has a printed wired tag board, two transistors, a ferrite pot core transformer, ten diode rectifiers, and five tantalum capacitors.

The circuit consists of a saturable core square wave power oscillator using two 2N553 transistors operating at approximately 10 kilocycles.

The primary winding of a ferrite transformer provides the oscillatory circuit. Three secondary windings provide the four dc supplies required.

A bridge rectifier is used for the two H.T. voltages. Full wave rectifiers supply the LT requirements.

(Continued on reverse side)

REMARKS

Power Supply, Electronic, PP-5095/U provides the supply voltages necessary to operate either a Radio Set AN/PRC-509 or AN/PRC-510 from 12-volt dc source. This power supply is used with the Amplifier Audio Frequency AN-5095/PRC for vehicular installations.

INFORMATION SOURCE

DGOS Specification No. CA-E104B.

DGOS Technical Data Schedule No. 356032.

DIMENSIONS AND WEIGHT

LENGTH	WIDTH	HEIGHT	WEIGHT
10 in.	2-3/4 in.	1-1/4 in.	1 lb. 8 oz.

DIRECTOR GENERAL ORDNANCE SYSTEMS

CANADIAN FORCES HEADQUARTERS - OTTAWA, CANADA

Description (Cont'd)

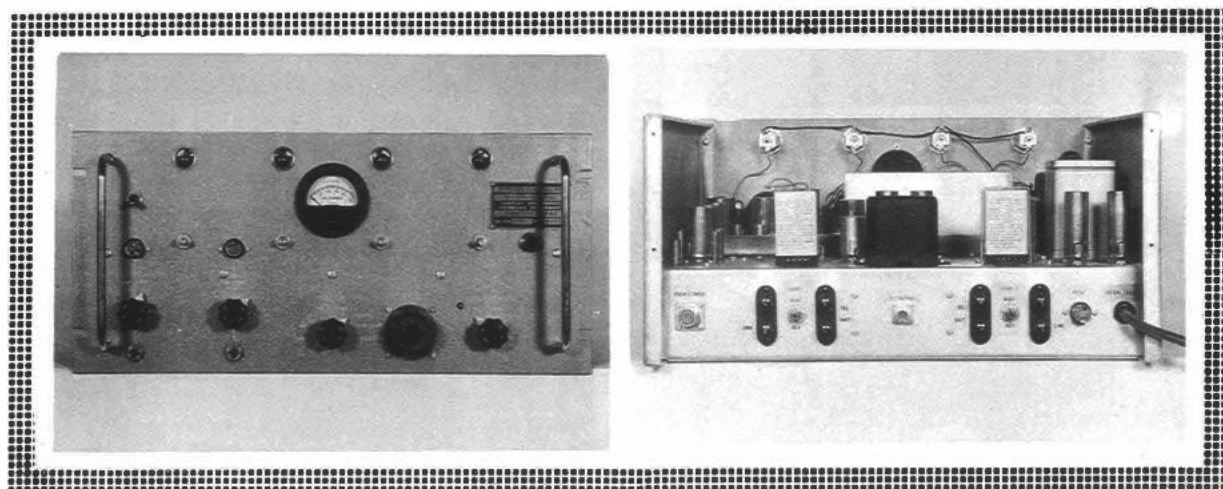
Each output voltage is decoupled with a tantalum capacitor.

With a nominal voltage of 12 vdc to the input of the power supply, output voltages are as follows:

A+	1.25v	B1+	60v
C-	5.6 v	B2+	120v

The power supply is housed in a cast aluminum case which is attached to Radio Set AN/PRC-509 or AN/PRC-510 by brackets and screws. A watertight seal is formed between the case and radio set through sealing washers.

NATO Stock No. 5820-21-109-8446.

EQUIPMENT CHARACTERISTICS SHEET*for***KEYER ADAPTER GROUP OA-5021/ TR**

ROLE This equipment is used in conjunction with a Frequency Shift Exciter and RF Transmitter at the sending end of a radio teletype two channel system. It serves to combine teletype sending channels and key a FS transmitter exciter to produce a four shift carrier thus providing a two channel modulation system.

DATE OF MANUFACTURE Sept 1953

MANUFACTURED BY CASEE

WEIGHT - 46 lbs

POWER REQUIREMENT

115 Volt, 60 cycles per sec,
single phase

DIMENSIONS

Height - 8 3/4 ins
Width - 19 ins
Depth - 16 ins

KEYING SPEED

120 WPM per channel

SHIFT SPACING - 425 cps

ARMY DEVELOPMENT ESTABLISHMENT
O t t a w a - C a n a d a

Main items of the Keyer Adapter Group OA-5021/TR:

- | | |
|--|-----|
| 1. Adapter Monitor, Keyer RCA Type FS No C1/C2 | - 1 |
| 2. Cable Assembly RF, CSRDE No CS22A039 | - 1 |
| 3. Cable Assembly RF, CSRDE No CS22A024 | - 1 |
| 4. Cable Assembly RF, CSRDE No CS22A025 | - 1 |
| 5. Key Adapter, DFS KY-5001/FRC | - 1 |

GENERAL

The keyer adapter group OA-5021/TR is designed for mounting in the standard 19-inch rack. This equipment was developed by the Canadian Army for adapting existing commercial pattern single circuit frequency shift (FS) equipment for double frequency shift (DFS) operation, that is, operation of two simultaneously keyed circuits over one frequency shift radio link.

The adapter monitor, keyer RCA FS No C1/C2 is a small plug-in unit, 2 1/4 inches wide by 1 1/2 inches high by 1 1/2 inches deep for insertion between one of the modulator tubes and its socket in the keying unit of the existing equipment. It adapts either keying unit FS No C1 or No C2 to provide the monitoring feedback to the DFS keyer adapter.

The cable assembly, RF, CSRDE No CS22A024 is a RF coaxial type RG 11/U cable, 32 inches in length between two type PL-259 connectors, used for making the following interconnections in the equipment:

- (i) Adapter, monitor and keyer adapter
- (ii) Electronic switch and oscillator RF
- (iii) Electronic switch and the two diversity receivers

The cable assembly RF CSRDE No CS 22A025 is a RF coaxial type RG-58A/U cable, 36 inches length with type UG-88/U connector on one end and type 3108-14S-1S connector on the other end. It is used for interconnecting the DFS keyer adapter and keying unit RCA type FS No C1/C2.

The cable assembly RF CSRDE No CS22A039 is a RF coaxial type RG-58C/U cable 40 inches in length with type UG-38C/U connector on one end and two terminal lugs on the other end. It is used for interconnecting the DFS keyer adapter and the keying input of a commercial frequency shift transmitter exciter unit.

REFERENCES

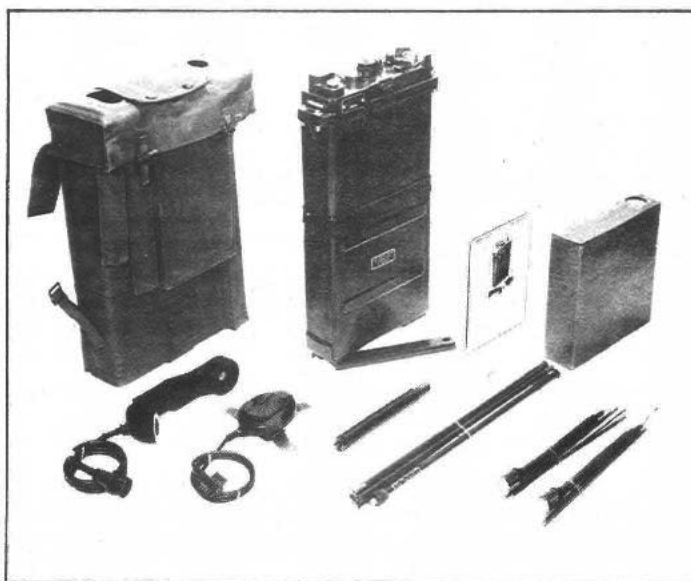
Publication: Canadian Army Operators Handbook (provisional)
CASSEE Instr No 134

ADE Drawing: CS 01A021

Specification: CA-EL01

EQUIPMENT CHARACTERISTICS SHEET

RADIO SETS AN/PRC-509 AND AN/PRC-510



DESCRIPTION

Radio Sets AN/PRC-509 and AN/PRC-510 are portable, frequency modulated, continuously tunable receiver-transmitter sets, with a power output of 1 watt providing voice communication over a distance of 3 to 5 miles under normal conditions. Both sets are identical in appearance but operate at different signal frequencies. Radio Set AN/PRC-509 operating within the frequency range of 26.3 to 38mc is intended for artillery use, while Radio Set AN/PRC-510 operating within the 38 to 55 mc range is intended for infantry use. A canvas carrying case which attaches to standard web equipment is used for man-pack operation. In this role the sets are powered with a dry battery, however, in vehicle installations, in aircraft, and in fixed ground stations, the sets are powered with an Electronic Power Supply PP-5095 utilizing readily available 12 volt dc sources. The equipment is immersion and shock proof, and is constructed to withstand air-dropping by parachute.

The receiver-transmitter is constructed as follows:

- Components are mounted onto an aluminum chassis which is attached to the rear of a control panel.
- The cast aluminum control panel is bolted through a sealing gland to a cast aluminum case.
- An aluminum case containing a removable battery is attached to the bottom of the receiver-transmitter case by two spring clamps.

/over

DIMENSIONS AND WEIGHT

LENGTH	WIDTH	HEIGHT	WEIGHT
18-1/2 in	10 in	5-1/2 in	23 lb 6 oz

DIRECTOR GENERAL ORDNANCE SYSTEMS

CANADIAN FORCES HEADQUARTERS - OTTAWA, CANADA

- d. Two feet attached to the bottom of the battery box pivot outwards to support the assembly when used in the ground station role.
- e. AT-5001/PRC four foot sectional whip antenna is used in the man-pack role.
- f. AT-271B/PRC sectional ten foot whip antenna is used in the ground station role.
- g. AB-129/PRC flexible coupler is used with the AT-271B/PRC.

The Main Components are:

- | | | |
|-----|--|---------------|
| 1. | Antenna AT-271B/PRC | 1 |
| 2. | Antenna AT-5001/PRC | 2 (one spare) |
| 3. | Battery Box CY-5056/PRC | 1 |
| 4. | Case, Carrying CY-5057/PRC | 1 |
| 5. | Coupler Antenna Flexible AB-129/PRC | 1 |
| 6. | Handset H-5003A/PRC | 1 |
| 7. | Headset Electrical H-5002/PRC | 1 |
| 8. | Plate Instruction Radio Set AN/PRC-509 | 1 |
| | or | |
| | Plate Instruction Radio Set AN/PRC-510 | 1 |
| 9. | Receiver-Transmitter Radio RT-5009/PRC-509 | 1 |
| | or | |
| | Receiver-Transmitter Radio RT-5010/PRC-510 | 1 |
| 10. | Battery Dry 135/67.5/6/1.5 V BA-349/U | 1 |

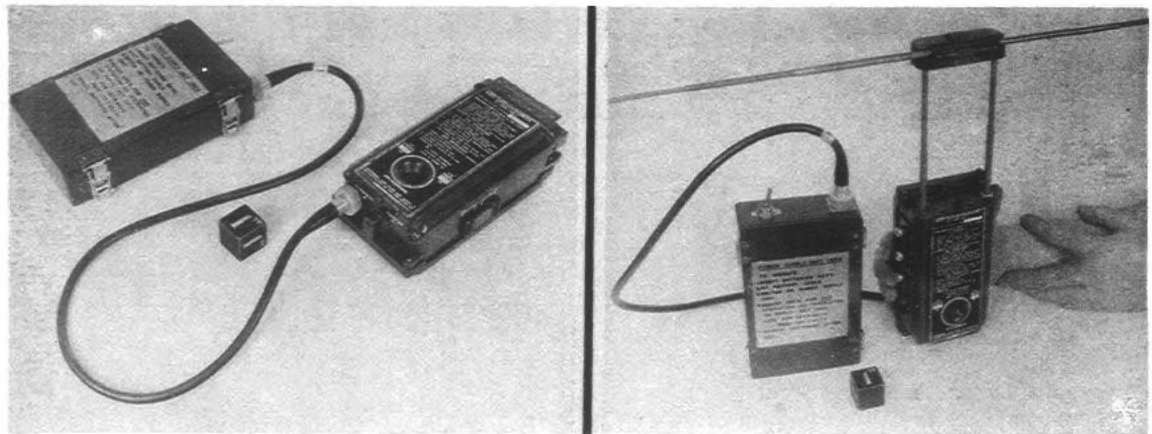
(Item 10 is not supplied as part of the radio set).

STOCK NUMBERS: 5820-21-101-7842, AN/PRC-509 as per EIS 1364.
5820-21-100-1595, AN/PRC-510 as per EIS 1279.

CLASSIFICATION: Standard F

REFERENCES

7610-21-116-0536 - Operators Instructions, DGOS GEN-58.
7610-21-102-2427 - Parts List.
CA EME Manual Elect I 230 - I 246.
OS 234 - Technical Specification AN/PRC-509.
OS 200 - Technical Specification AN/PRC-510.
AI-0182 - Drawings Schedule.
ECS 200-2-0 - Power Supply, Electronic, PP-5095/U.

PRELIMINARY DATA SUMMARY**FOR****RADIO SET AN/URC 4 (SARAN) WITH POWER SUPPLY**

ROLE: The URC 4 with its power supply is intended for intercept use by the Canadian Rangers. The radio set provides a homing signal and communication link from ground to air.

WEIGHT:

The radio set - 2 1/2 lbs (approx)

Power supply with batteries - 2 lbs (approx)

DIMENSIONS:

Radio set = 7 in x 4 in x 2 1/4 in

Power supply = 8 in x 4 1/2 in x 1 1/2 in

POWER SUPPLY - six BA30 type

ARMY DEVELOPMENT ESTABLISHMENT
O t t a w a . . . C a n a d a

GENERAL DESCRIPTION

a. Radio Set

The radio set is a compact light weight receiving and transmitting equipment originally designed for use under emergency rescue conditions. The equipment is crystal controlled to the frequencies 125.1 or 250.2 MCS.

b. Power Supply

The power supply consists of a DC-DC Converter which with six "D" size 1 1/2 volt batteries is contained in a fibreglass case. The DC-DC converter consists of a multivibrator oscillator utilizing two power transistors and the primary windings of a ferrite core transformer. The HF supply voltage to the radio set is obtained from secondary windings on this transformer. Germanium diodes and tantalum capacitors provide the DC output and ripple filtering. A flexible cable connect the radio set to the power supply.

(This information is for prototype equipment and may be changed for subsequent equipment).

EQUIPMENT CHARACTERISTICS SHEET

AMPLIFIER, AUDIO FREQUENCY, AM-5134



DESCRIPTION

The AM-5134 amplifier is intended for use with TA-43 telephone to extend the operating range of the telephone by providing speech and ringing amplification and allowing remote send-receive switching. The amplifier is portable, battery-powered, transistorized and designed to perform within -40° to 150° F temperature range.

The amplifier comprises a receive speech amplifier, a receive ring amplifier, a remote control send-receive switching circuit, and a low-pass filter to prevent pick-up of radio transmissions. The speech amplifier has a treble boost for equalized response on incoming speech over distances exceeding 20 miles of WD-1/TT telephone cable. The send-receive switching circuit bypasses send-speech and ringing around amplifier to line. Speech amplification is 35 db at 300 cps, 60 db at 3000 cps and ringing amplification is 22 db. A level control is provided for manual adjustment of the speech output to the telephone. The standby circuit drain at room temperatures is five milliamperes and the battery life in continuous operation is approximately eight weeks.

STOCK NUMBER: 5805-21-109-6920

CLASSIFICATION: Standard A

POWER SOURCE: 6135-00-120-1020 Battery, Dry, BA-30, 1.5 volt, D-cells - Qty 4

REFERENCES

AEEE TDS 303162

AEEE Equipment Specification CA-E131

CA EME Manual Electrical J140-J146

DIMENSIONS AND WEIGHT

LENGTH	WIDTH	HEIGHT	WEIGHT
12-1/2 in	5-1/2 in	4-3/4 in	10 lb

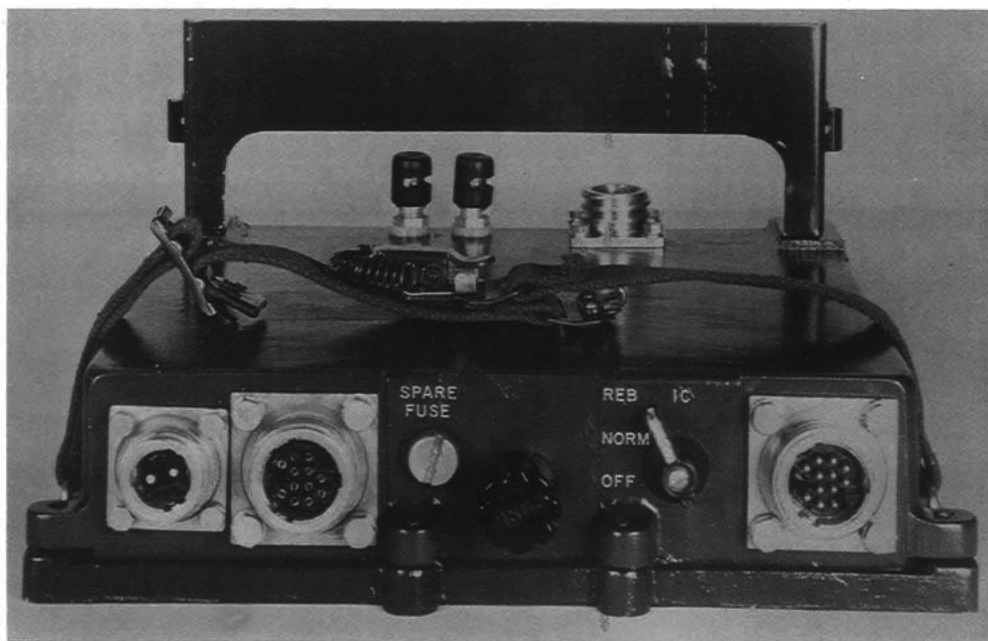
DIRECTOR GENERAL ORDNANCE SYSTEMS

CANADIAN FORCES HEADQUARTERS - OTTAWA, CANADA

PRELIMINARY DATA SUMMARY

FOR

AMPLIFIER, AUDIO FREQUENCY, AM-5095/PRC



ROLE

The equipment forms a mounting for the Radio Set AN/PRC-509 or 510 and its Power Supply PP-5095/U when used in vehicular roles. It integrates the Radio Set C42 audio harness into the AN/PRC-509 or 510 audio circuits. Operation is from the 24 volt vehicle battery.

WEIGHT

8 1/4 lbs

DIMENSIONS

Length - 10 ins
Width - 10 1/2 ins
Depth - 5 1/2 ins

ARMY DEVELOPMENT ESTABLISHMENT
O t t a w a . . . C a n a d a

MATERIAL

The equipment has a cast aluminum case and cover which form a sealed container for transistorized microphone and headset amplifiers. A front panel has 12 way and 2 way Plessy Mark IV Connectors for connection to the Radio Set C42 audio harness.

GENERAL DESCRIPTION

The circuit comprises two transistorized audio amplifiers having approximately 25 db gain. The microphone amplifier is required to increase the dynamic type C42 microphone level to that required by the carbon type microphone normally used with the AN/PRC 509 or 510. The headset amplifier is required to increase the audio output from the radio set to that required when used in noisy vehicles.

REFERENCES

Specification - CA-E-103
ADE Schedule Drawing No 356031

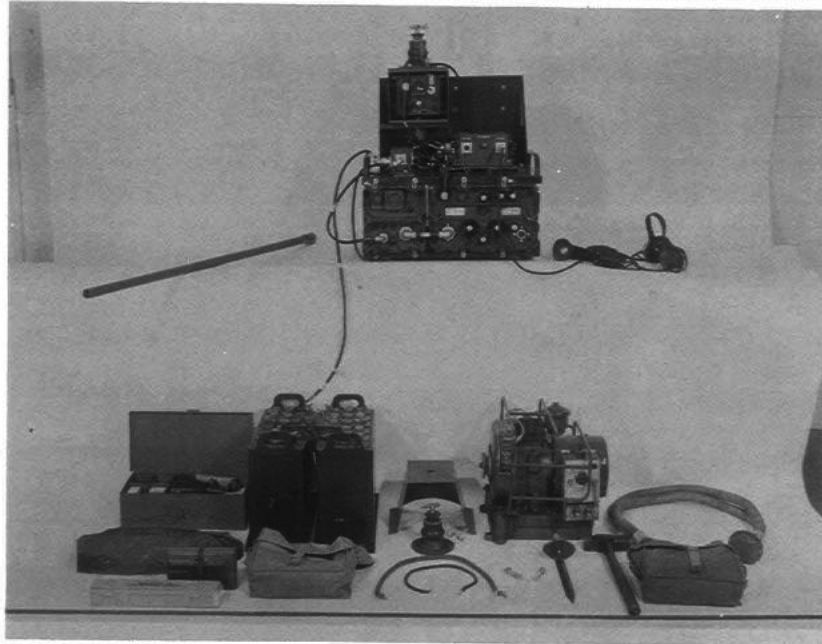
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Serial 200-7-1

EQUIPMENT CHARACTERISTICS SHEET

for

RADIO STATION C42, NATIONAL SURVIVAL, CDN



Information for the above equipment may be obtained from Canadian Army
EME Manual Electrical I 850 - 859.

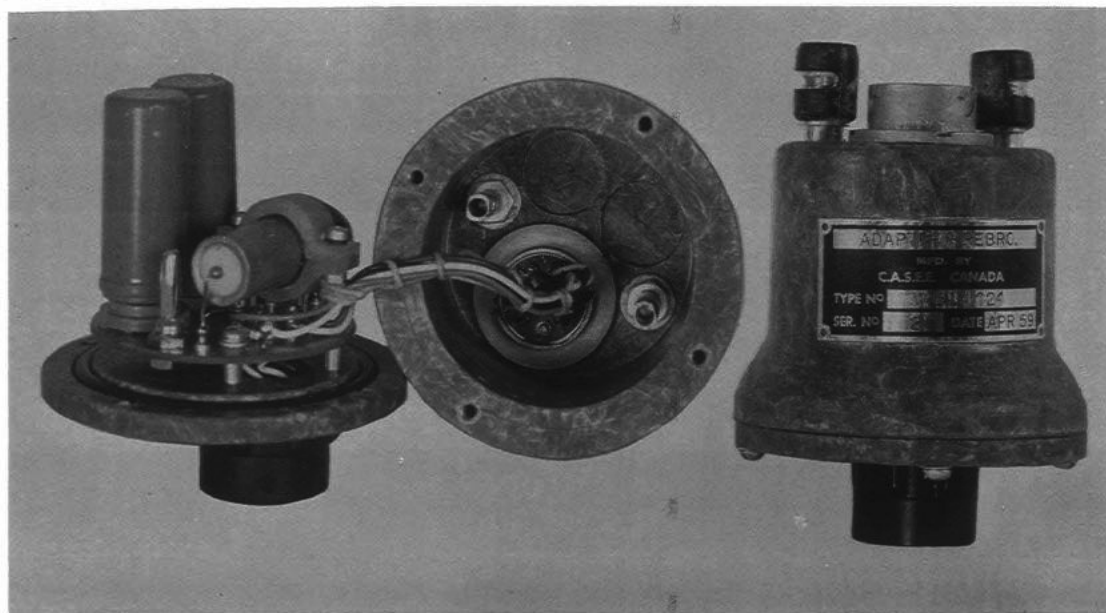
ARMY DEVELOPMENT ESTABLISHMENT

O t t a w a - C a n a d a

Issue 1

RESTRICTED

Date 7 Oct 60

PRELIMINARY DATA SUMMARY**FOR****CONTROL, RADIO SET, C-5094/PRC****ROLE**

This equipment is attached to the Radio Set AN/PRC 509 and 510 by the Radio Set audio connector. It provides control of the radio set up to a distance of 200 yards from the vehicle installations of the Amplifier Audio Frequency AN-5095/PRC or from a portable control unit (still under development) by the use of field telephone wire.

WEIGHT

12 oz

DIMENSIONS

Length - 4 ins
Diameter - 2 3/4 ins

ARMY DEVELOPMENT ESTABLISHMENT
O t t a w a . . . C a n a d a

MATERIAL

The equipment has a molded plastic case and cover which form a sealed container for two relays, resistors, capacitors and associate wiring. On top of the unit is a 10 point receptacle for connection to a handset for monitoring purposes.

GENERAL DESCRIPTION

The circuit consists of two relays and appropriate decoupling or isolating components, wired so that the send/receive switching, squelch switching and audio levels are carried to the control harness over two wires.

REFERENCES

ADE Schedule of Drawings No 356022

RESTRICTED

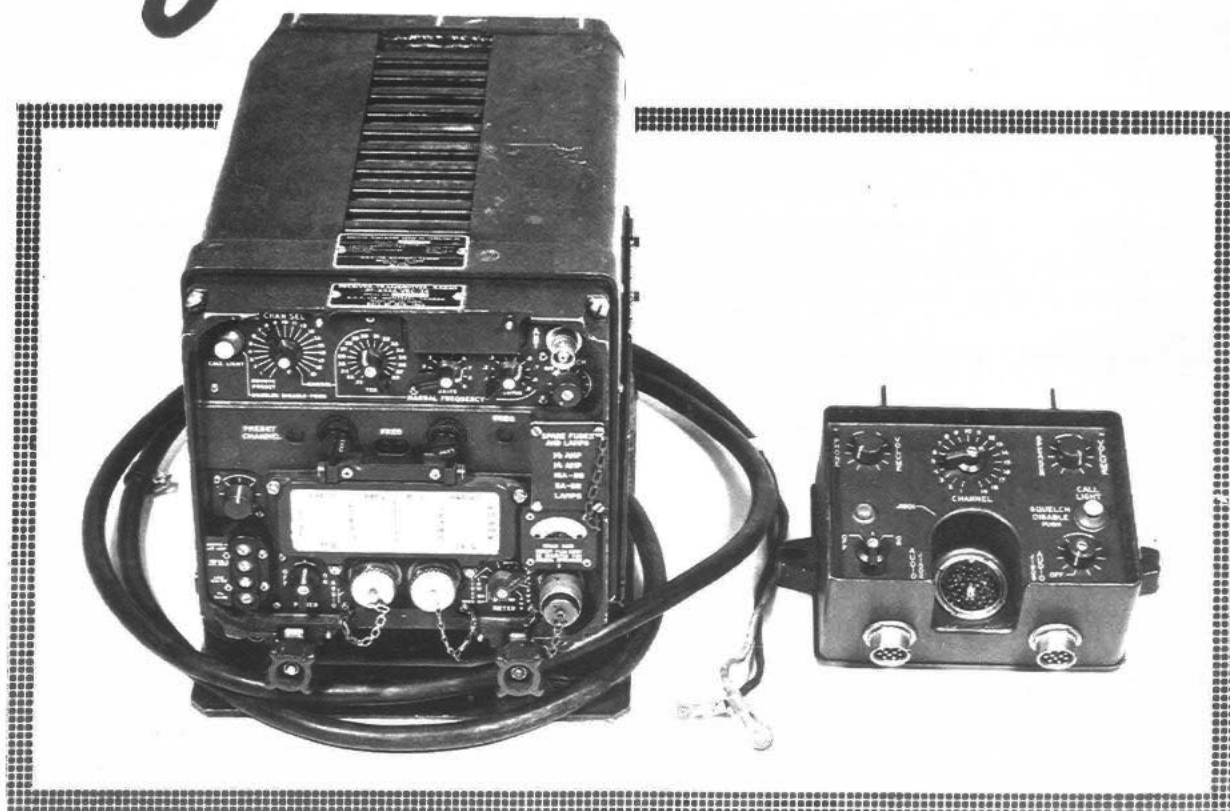
Serial

200-12-0

EQUIPMENT CHARACTERISTICS SHEET

for

RADIO SET, AN/VRC-24A



ROLE: The AN/VRC-24A is a vehicle mounted, amplitude modulated, receiver transmitter operating on 1750 crystal-controlled channels within the frequency range of 225 to 399.9 mcs. It is intended for ground to air operation.

CLASSIFICATION: Standard

NATO Stock No. 5820-00-892-3722

FREQUENCY RANGE: 225.0 to 399.9 mc

DISTANCE RANGE: Ground to air, line of sight

WEIGHT: 82 lbs

DIMENSIONS: Height 12 ins
Depth 15 ins
Width 10 ins

ARMY EQUIPMENT ENGINEERING ESTABLISHMENT - OTTAWA, CANADA

Issue 1

RESTRICTED

Date SEP 64

MAIN COMPONENTS:

Receiver-Transmitter Group OA-2648A/VRC-24 consisting of
Receiver-Transmitter RT-323A/VRC-24
Dynamotor DY-151U
Receiver-Transmitter Case CY2557A/VRC-24
Mounting MT-1436A/U
Radio Set Control C-1439/U
Antenna AT-803/VR
Radio Frequency Cable Assembly CG-1650/U
Electrical Power Cable Assembly CX-4629/U
Electrical Special Purpose Cable Assembly CX-4630/U
Electrical Special Purpose Cable Assembly CX-4884/U
Dynamic Loudspeaker LS-166/U
Microphone M-29A/U
Headset, Microphone H144-C/U
Antenna AT-197/GR
Control Group AN/GRA-6

GENERAL DESCRIPTION: The receiver-transmitter has all operating controls, meter, indicator lamps and fuses located on the front panel. Also on the front panel are receptacles for the connection of microphone, loudspeaker or headset, antenna, and security equipment. All other connections (to power input and remote control box) are made at the rear of the receiver-transmitter. A blower is fastened to the underside of the case.

The receiver-transmitter plugs into a shock mount assembly which is connected via cables to the vehicle battery and control unit (where applicable).

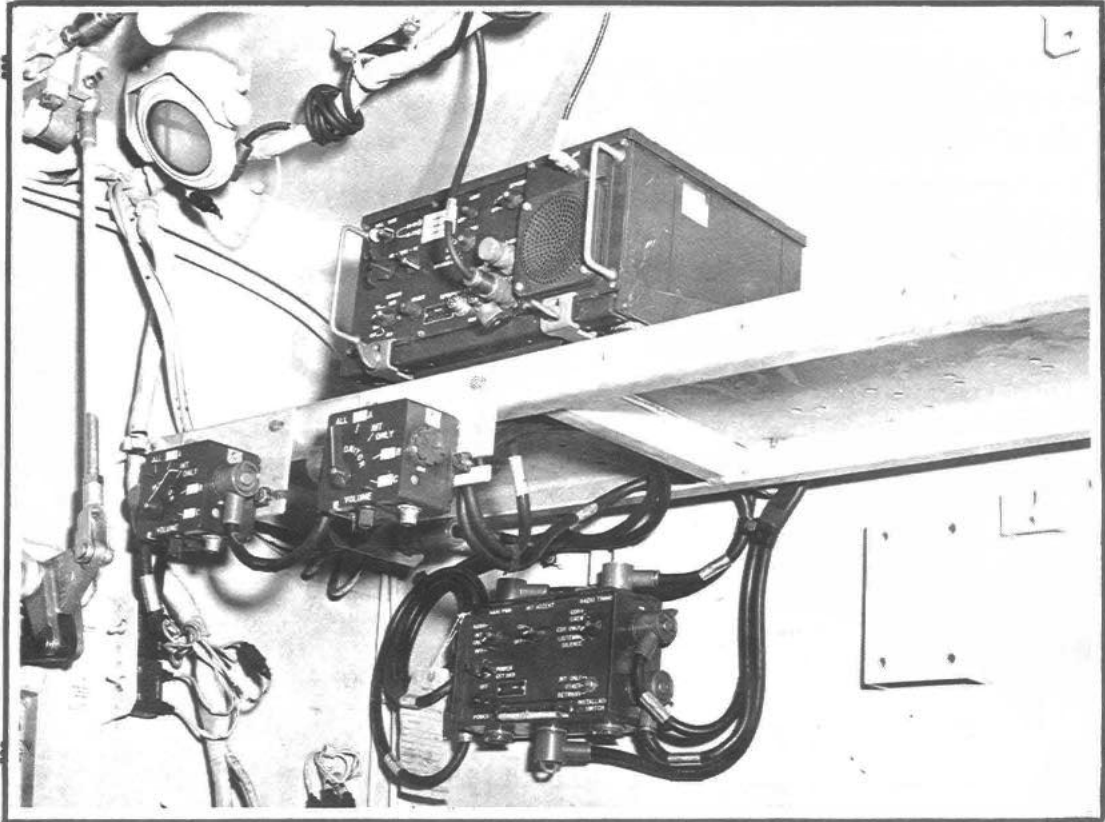
The Control Radio Set C-1439/U permits operation of the radio set from a position at a short distance from the receiver-transmitter.

Antenna AT-197/GR is a discone antenna capable of being mounted on a mast.

Antenna AT-803/VR is a broadband stub antenna mounted through the skin of the vehicle at a convenient location.

Control Group AN/GRA-6 consists of a local and a remote control, a handset and a carrying bag. It provides push to talk control of the AN/VRC-24A from a position up to two miles away. Intercom facilities are also available.

APPLICABLE PUBLICATIONS: TM-11-5820-222-10
5820-222-20
5820-222-20P
5820-222-35P
5038

EQUIPMENT CHARACTERISTICS SHEET*for***RADIO SET AN/VRC-46**

ROLE: The AN/VRC-46 is a vehicle mounted frequency modulated receiver-transmitter, operating on 920 crystal controlled channels within the frequency range of 30 to 75.95 mc. It is intended for vehicle to vehicle communication for all arms.

CLASSIFICATION: Standard
NATO Stock No. 5820-00-892-0871

FREQUENCY RANGE: Band A 30.0 to 52.95 mc
Band B 53.0 to 75.95 mc.

DISTANCE RANGE: High Power
15 to 20 miles

DIMENSIONS: Height 8-3/4'
Width 16
Depth 14

MAIN COMPONENTS:

Receiver-Transmitter, Radio RT-524/VRC	1
Mounting MT-1029/VRC	1
Antenna AT-912/VRC	1
Cable Assembly, Power. Electrical CX-4720/U (10 ft long)	1

GENERAL DESCRIPTION: The receiver-transmitter has all operating controls and receptacles for connections to antenna and audio auxiliaries, located on the front panel. All other connections (to power input, and remote control boxes) are made at the rear of the receiver-transmitter mounting MT-1029/VRC.

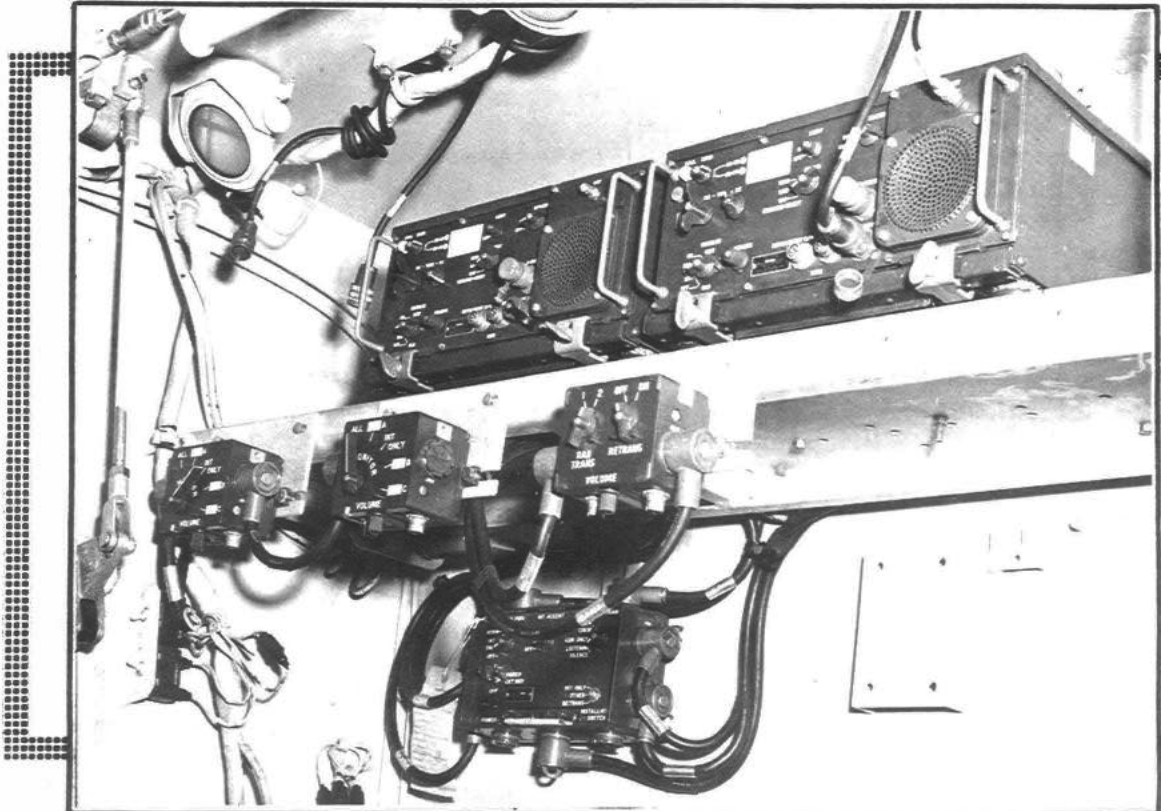
The receiver-transmitter plugs into a shock mount assembly which is connected via cables to the vehicle battery and vehicle intercommunication system.

The Antenna AT-912/VRC is a whip type antenna complete with matching unit and is mounted on a convenient location on the vehicle body.

The installation kit provided for each vehicle includes control boxes, cables and audio accessories for extending the use of the radio set to various crew members and for furnishing intercommunication facilities.

APPLICABLE PUBLICATIONS: TM-11-5820-401-10

20
20P
35
35P
399-20P
35
35P
487-20P
35P
402-20P
35P
403-20P
35P

EQUIPMENT CHARACTERISTICS SHEET*for***RADIO SET AN/VRC-49**

ROLE: The AN/VRC-49 consists of two vehicle mounted, frequency modulated receiver-transmitters each operating on 920 crystal controlled channels within the frequency range of 30 to 75.95 mc. The AN/VRC-49 is intended for vehicle to vehicle communication for all arms.

CLASSIFICATION: Standard
NATO Stock No. 5820-00-892-0865

FREQUENCY RANGE: Band A 30.0 to 52.95 mc
Band B 53.0 to 75.95 mc

DISTANCE RANGE: High Power
15 to 20 miles

WEIGHT: 160 lbs (approx)

DIMENSIONS: Height 8-3/4
Width 16
Depth 14

MAIN COMPONENTS:

Receiver Transmitter, Radio RT-524/VRC	2
Mounting MT-1029/VRC	2
Antenna AT-912/VRC	2
Control, Radio Set C-2299/VRC	1
Cable Assembly, Power, Electrical CX-4720/VRC (10 ft long)	1
Cable Assembly, Power, Electrical CX-4721/VRC (2 ft 6-in long)	1

GENERAL DESCRIPTION: Each receiver-transmitter has all operating controls and receptacles for connections to antenna and audio ancillaries located on the front panel. All other connections (to power input and remote control boxes) are made at the rear of each receiver-transmitter mounting MT-1029/VRC.

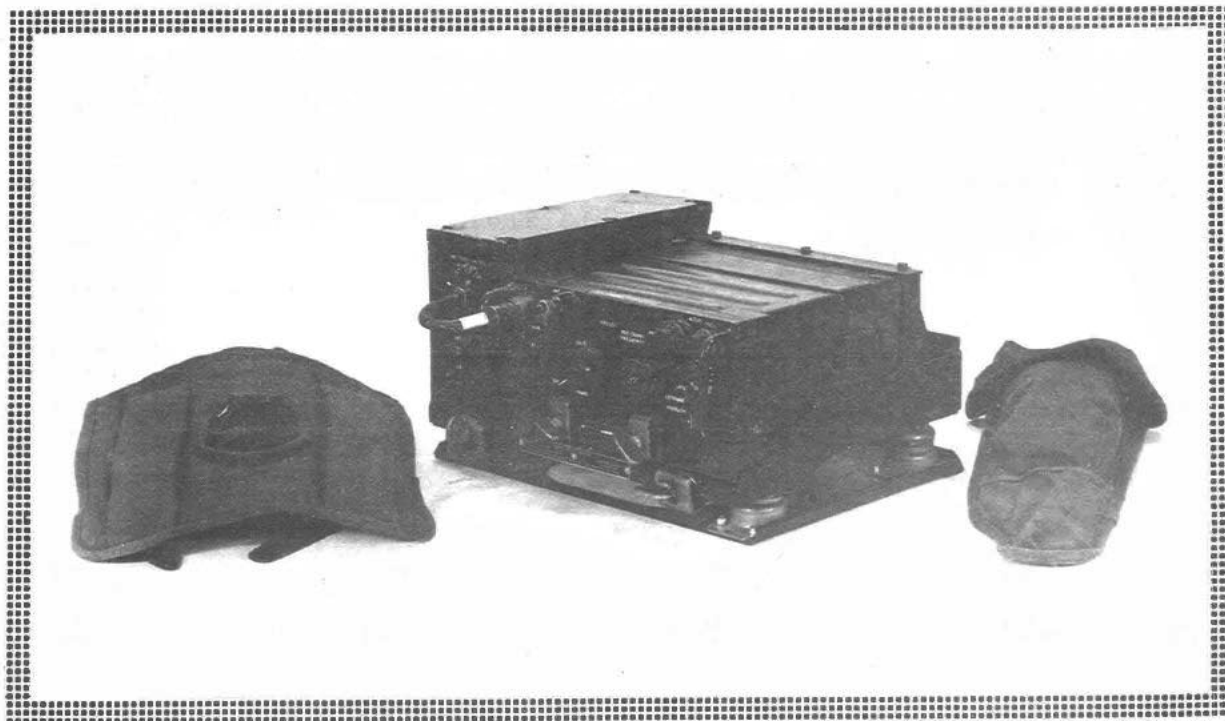
Each receiver-transmitter plugs into a shock mount assembly which is connected via cables to the vehicle battery and vehicle intercommunication system.

The Antennas AT-912/VRC are whip type antennas complete with matching units and are mounted on convenient locations on the vehicle body.

The installation kit provided for each vehicle includes control boxes, cables and audio accessories for extending the use of the radio sets to various crew members and for furnishing intercommunication facilities.

The Control, Radio Set C-2299/VRC provides an automatic retransmission facility between the two receiver-transmitters.

APPLICABLE PUBLICATIONS: TM-11-5820-401-10
20
20P
35
35P
399-20P
35
35P
487-20P
35P
402-20P
35P
403-20P
35P
412-20P
35P

EQUIPMENT CHARACTERISTICS SHEET*for***RADIO SET AN/GRC-125**

ROLE: The AN/GRC-125 is a vehicle mounted, frequency modulated, receiver-transmitter, operating on 920 crystal controlled channels within the frequency range of 30 to 75.95 mcs. It also has the capability of being removed from the vehicle and operated in the manpack role. When associated with ancillaries for man-pack operation it is designated Radio Set AN/PRC-25. It is intended for all arms use.

CLASSIFICATION: Standard

NATO Stock No. 5820-00-086-7536

FREQUENCY RANGE: Low Band 30 to 52.95 mc
High Band 53 to 75.95 mc

DISTANCE RANGE: 5 miles

DIMENSIONS: Height 8-3/4
Width 16
Depth 14

WEIGHT: 40 lbs approx

DIRECTOR GENERAL ENGINEERING (LAND) - OTTAWA, CANADA

MAIN COMPONENTS:

Receiver-Transmitter Radio RT-505/PRC-25	1
Battery Box CY-2562/PRC-25 (Part of Item 1)	1
Amplifier Power Supply Group OA-3633/GRC consisting of:	
Amplifier Power Supply AM-2060/GRC	1
Cable Assy CX-4655/GRC	1
Mounting MT-1029/VRC	1
Antenna AT-912/VRC	1
Cable Assy CX-4720/VRC	1
Ancillary items for man-pack use consisting of:	
Harness Electrical Equipment ST-138/PRC-25	1
Bag Cotton Duck CW-503/PRC-25	1
Handset H-138/U	1
Battery Dry BA-386/PRC-25	1
Antenna AT-271 A/PRC	1
Antenna AT-892/PRC-25	1
Support, Antenna AB-591/PRC-25	1

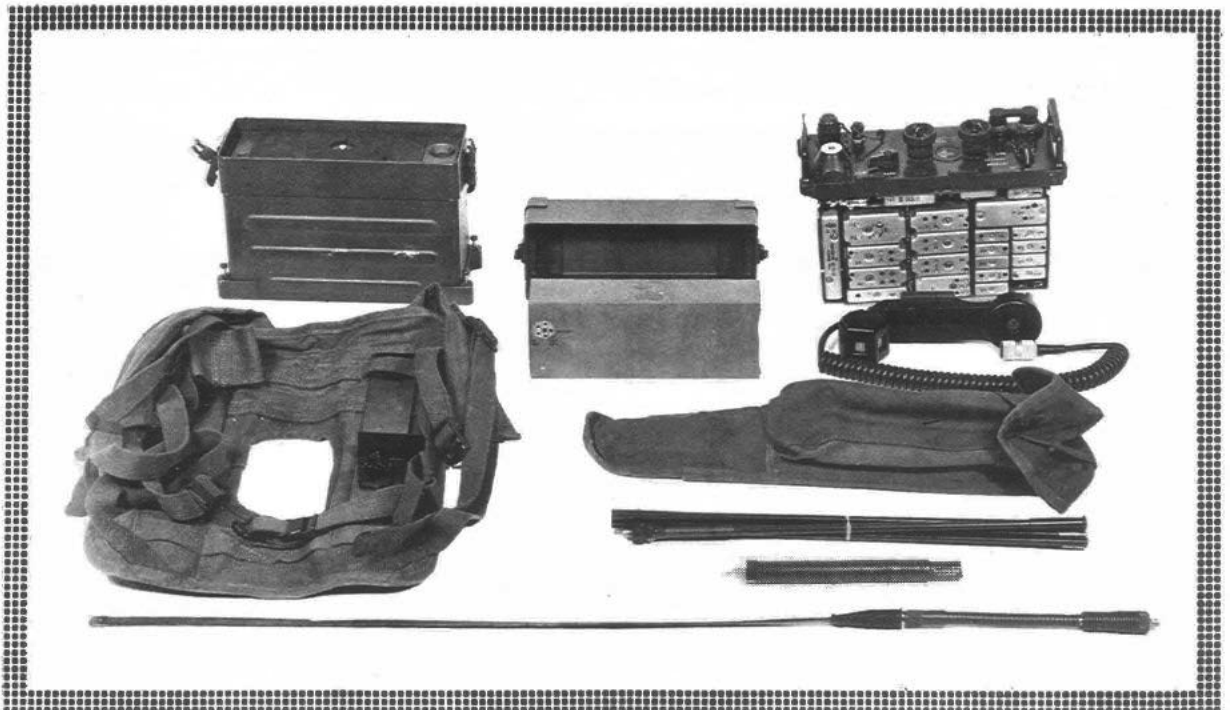
GENERAL DESCRIPTION: The Amplifier Power Supply Group OA-3633/GRC together with Mounting MT-1029/VRC forms a mount for the Receiver-Transmitter RT-505/PRC-25. It provides operating voltage to and amplification of the radio signals from the RT-505/PRC-25.

Installation Kits provided for specific vehicles include control boxes, cables and audio accessories for extending the use of the radio set to various crew members and for furnishing intercommunication facilities.

Antenna AT-912/VRC is a whip type antenna complete with matching unit and is mounted in a convenient location on the body of the vehicle.

APPLICABLE PUBLICATIONS: TM-11-5820-498-10

20
35
495-20P
35P
497-20P
35P
499-20P
35P
402-20P
35P
403-20P
35P

EQUIPMENT CHARACTERISTICS SHEET*for***RADIO SET, AN/PRC-25**

ROLE: The AN/PRC-25 is a battery operated, portable, frequency modulated, receiver-transmitter operating on 920 crystal-controlled channels within the frequency range of 30 to 75.95 mcs. It is intended for all arms use.

CLASSIFICATION: Standard
NATO Stock No. 5820-00-857-0759

FREQUENCY RANGE: Low Band 30.00 to 52.95 mc
High Band 53.00 to 75.95 mc

DISTANCE RANGE: 3-5 miles

DIMENSIONS: Height 4-ins
Width 11-ins
Depth 11-ins

MAIN COMPONENTS:

Receiver-Transmitter, Radio RT-505/PRC-25	1
Battery Box CY-2562/PRC-25 (Part of Item 1)	1
Support, Antenna AB-591/PRC-25	1
Antenna AT-892/PRC-25	1
Antenna AT-271A/PRC	1
Harness, Electrical Equipment ST-138/PRC-25	1
Bag, Cotton Duck CW-503/PRC-25	1
Handset H-138/U	1
Battery, Dry BA-386/PRC-25	1

GENERAL DESCRIPTION: The Receiver-Transmitter is constructed as follows:

Components are mounted onto an aluminum chassis which is attached to the rear of a control panel.

The Receiver-Transmitter case is fixed by captive screws to the control panel.

An aluminum case containing a removable battery is attached to the bottom of the Receiver-Transmitter case by two spring clamps.

AT-892/PRC-25 is a three foot long, semi-rigid steel tape antenna used for short-range service.

AT-271A/PRC is a ten foot long, multisection whip antenna used when maximum range is required.

Handset H-138/U consists of a microphone and receiver section. The microphone section has two elements for cancellation of outside noise.

Ancillary equipment is available to operate the AN/PRC-25 in vehicular installations. The radio set when operating in vehicular installations is designated Radio Set AN/GRC-125.

APPLICABLE PUBLICATIONS: TM-11-5820-398-10

20
20P
35
35P
497-20P
35P

EQUIPMENT CHARACTERISTICS SHEET

for

INTERCOMMUNICATIONS SET, AN/VIC-1



ROLE: The AN/VIC-1 provides intercommunication facilities between members of a vehicle crew. The control boxes also provide operating positions for one or two of the VRC-12 or AN/GRC-125 family of radio.

CLASSIFICATION: Standard
NATO Stock No. 5820-00-856-3273

DIMENSIONS: Amplifier, Audio Frequency AM-1780/VRC

Height 6
Width 11
Depth 4

Control Intercommunication Set C-2298/VRC

Height 4
Width 2-1/2
Depth 3-1/2

MAIN COMPONENTS: Amplifier, Audio Frequency AM-1780/VRC
Control Intercommunication Set C-2298/VRC

ANCILLARY COMPONENTS: Headset-Microphone H-161/GR
Cable Assembly CX-4720/VRC
Cable Assembly CX-4723/VRC

GENERAL DESCRIPTION: The AM-1780/VRC has operating controls, a Power indicator lamp and two binding posts located on the front panel. Connectors are located on the top bottom and sides of the unit. Captive screws attach a gasket sealed cover to the rear of the AM-1780/VRC. The cover has four lugs that are used to mount the AM-1780/VRC.

APPLICABLE PUBLICATIONS: TM-11-5820-401-10
-20
-20P
-35
-35P
406-20P
408-20P

RESTRICTED

Serial 205-I-0

EQUIPMENT CHARACTERISTICS SHEET

for

**RADIO STATION C42
in Truck, Utility, 1/4 Ton Cdn**



Information for the above equipment may be obtained from Canadian Army
EME Manual Electrical L 170 - 179.

**ARMY DEVELOPMENT ESTABLISHMENT
O t t a w a - C a n a d a**

Issue 1

RESTRICTED

Date 7 Oct 60

RESTRICTED

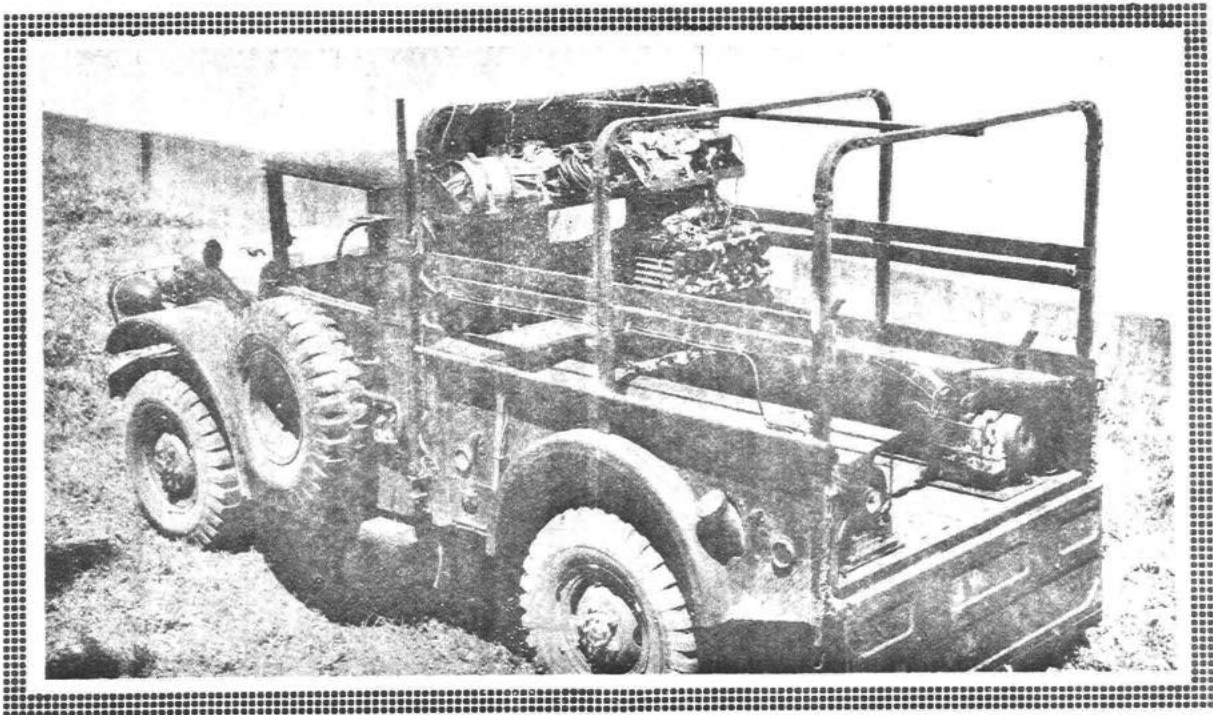
Serial 205-I-2

EQUIPMENT CHARACTERISTICS SHEET

for

RADIO STATION C42

in Truck, Cargo, 3/4 Ton, Cdn



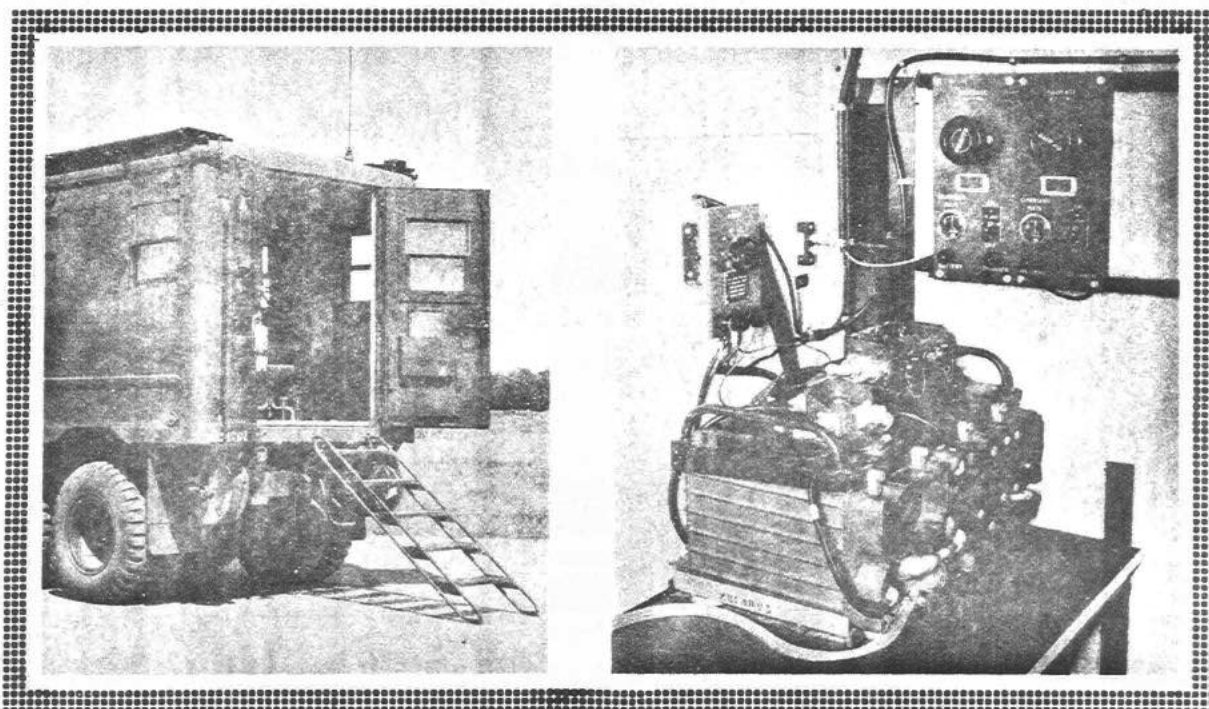
Information for the above equipment may be obtained from Canadian Army
EME Manual Electrical L 230 - 239.

ARMY DEVELOPMENT ESTABLISHMENT
O t t a w a - C a n a d a

Issue 1

RESTRICTED

Date 7 Oct 60

EQUIPMENT CHARACTERISTICS SHEET*for***RADIO STATION C42****in Truck, Sigs Van, 2-1/2 Ton, Cdn**

Information for the above equipment may be obtained from Canadian Army
EME Manual Electrical L 430 - 439.

ARMY DEVELOPMENT ESTABLISHMENT
O t t a w a - C a n a d a

RESTRICTED

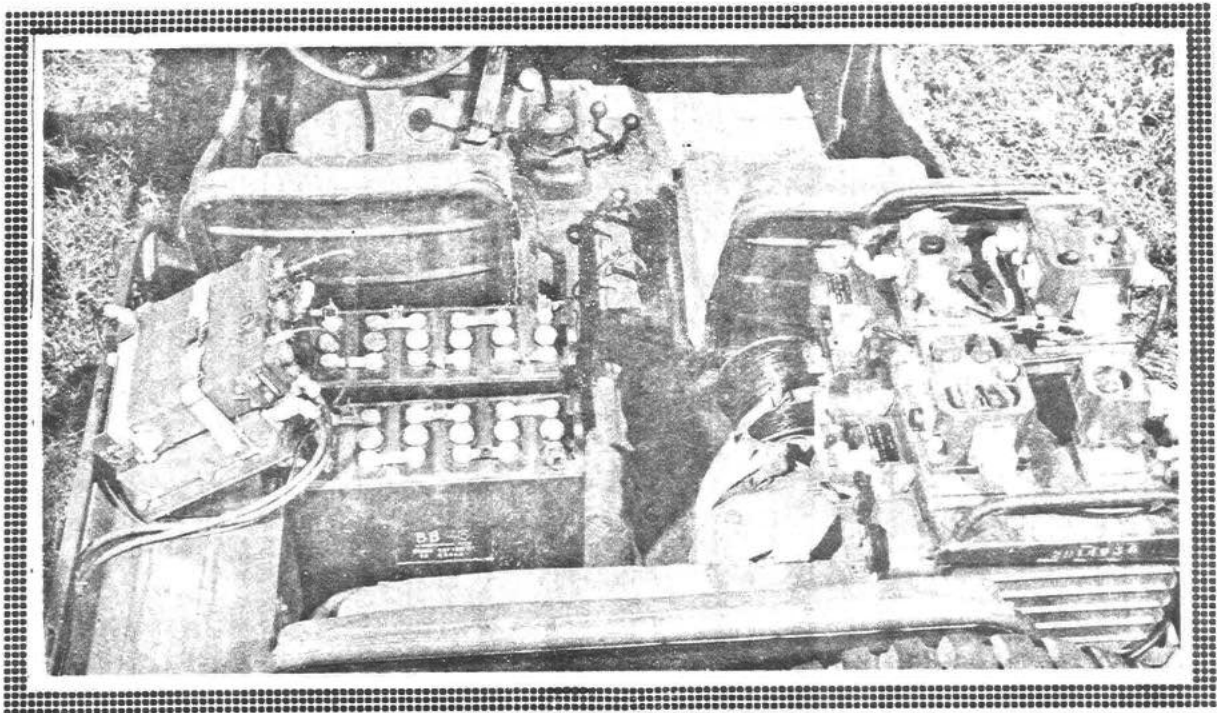
Serial 205-2-0

EQUIPMENT CHARACTERISTICS SHEET

for

RADIO STATION C42/509 or C42/510

in Truck, Utility, 1/4 Ton, Cdn



Information for the above equipment may be obtained from Canadian Army
EME Manual Electrical L 180 - 189.

ARMY DEVELOPMENT ESTABLISHMENT
O t t a w a - C a n a d a

Date 7 Oct 60

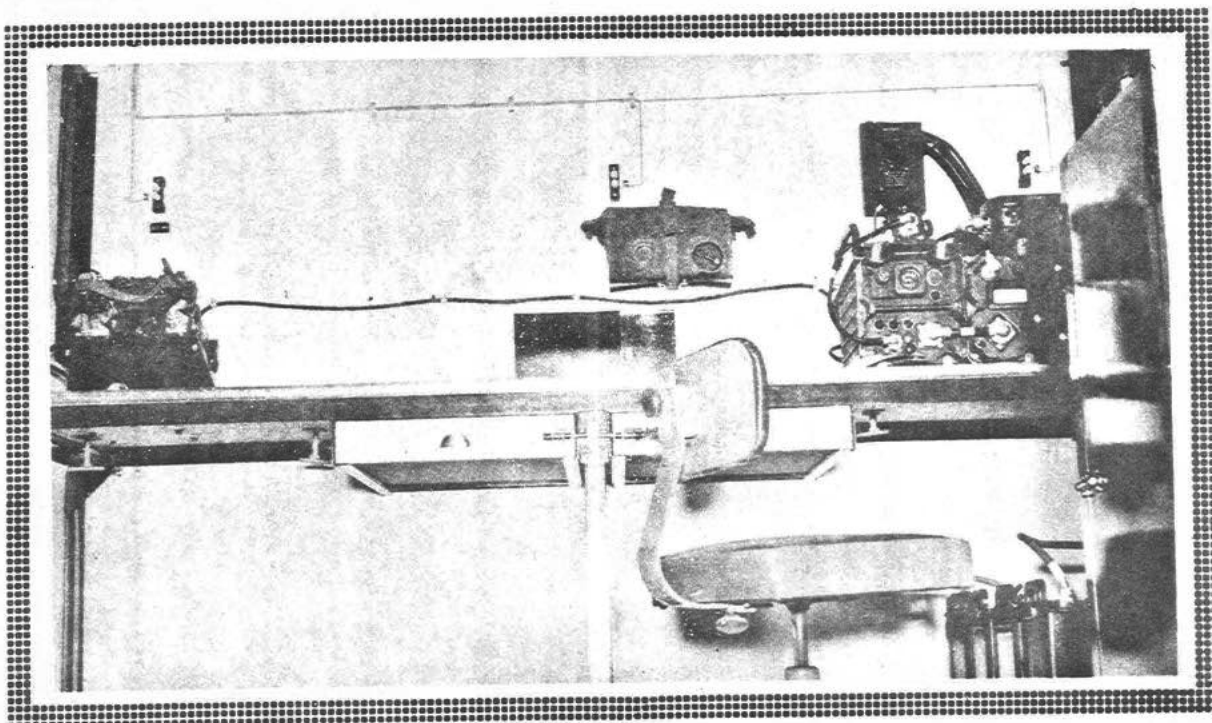
RESTRICTED

Serial 205-2-2

EQUIPMENT CHARACTERISTICS SHEET

for

RADIO STATION C42/509
in Truck, Sigs Van, 2-1/2 Ton, Cdn



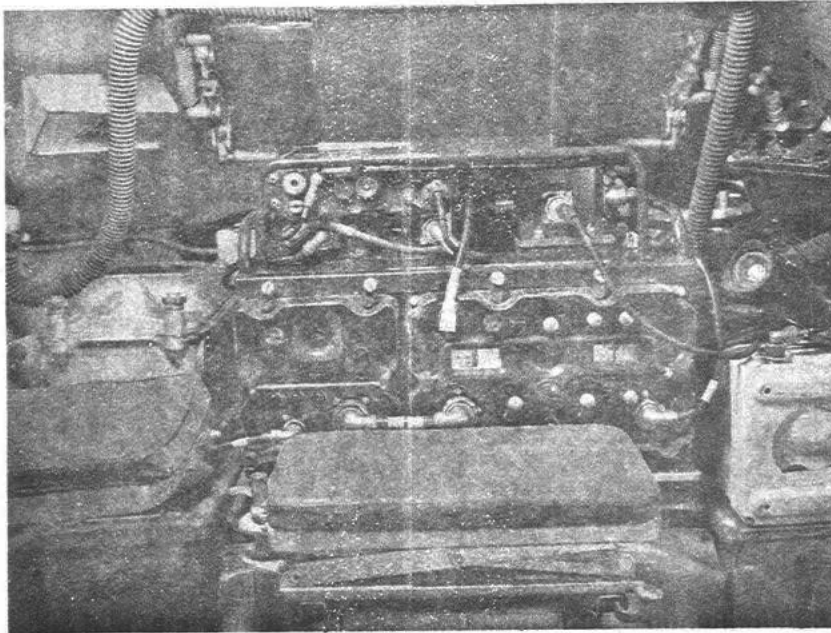
Information for the above equipment may be obtained from Canadian Army
EME Manual Electrical L 440 - 449.

ARMY DEVELOPMENT ESTABLISHMENT
O t t a w a - C a n a d a

Issue 1

RESTRICTED

Date 7 Oct 60

EQUIPMENT CHARACTERISTICS SHEET*for***RADIO STATION C42/510 in Scout Car, "Ferret" Cdn**

Information for the above equipment may be obtained from Canadian Army
EME Manual Electrical M 620 - 629.

ARMY DEVELOPMENT ESTABLISHMENT
O t t a w a - C a n a d a

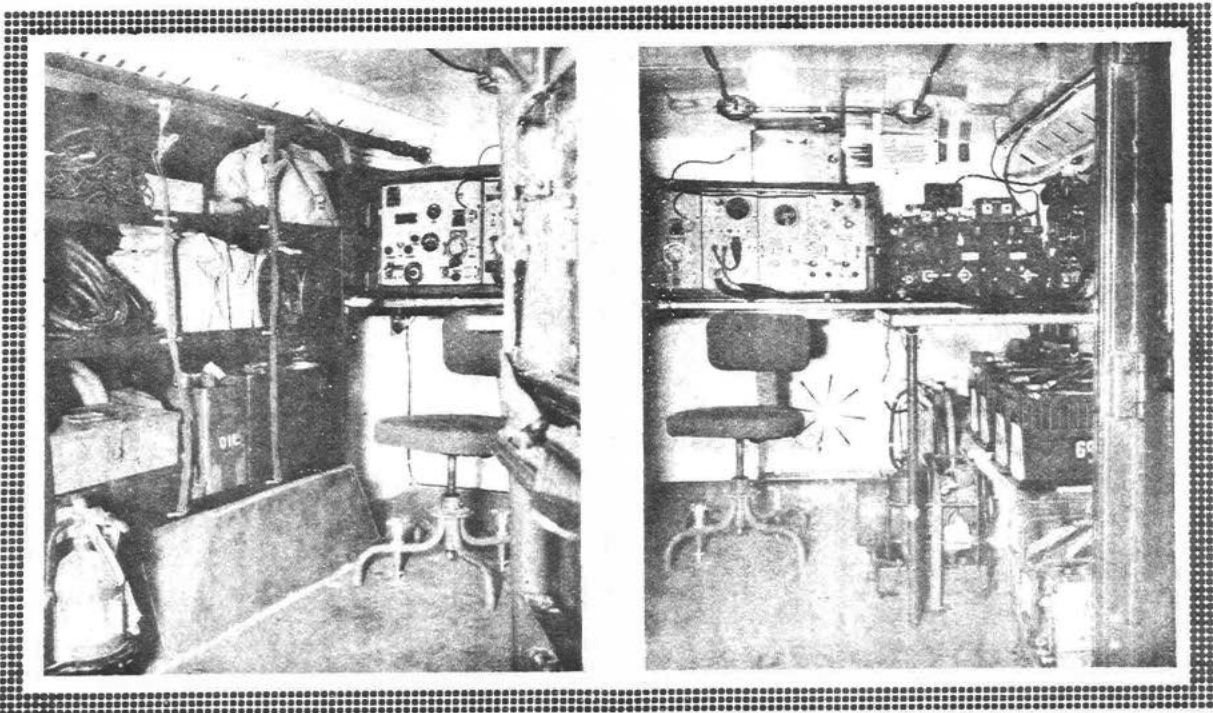
RESTRICTED

Serial 205-3-1

EQUIPMENT CHARACTERISTICS SHEET

for

**RADIO STATION C42/52
in Truck, Panel, 3/4 Ton, Cdn**



Information for the above equipment may be obtained from Canadian Army
EME Manual Electrical L 280 - 289.

**ARMY DEVELOPMENT ESTABLISHMENT
O t t a w a - C a n a d a**

Issue 1

RESTRICTED

Date 7 Oct 60

RESTRICTED

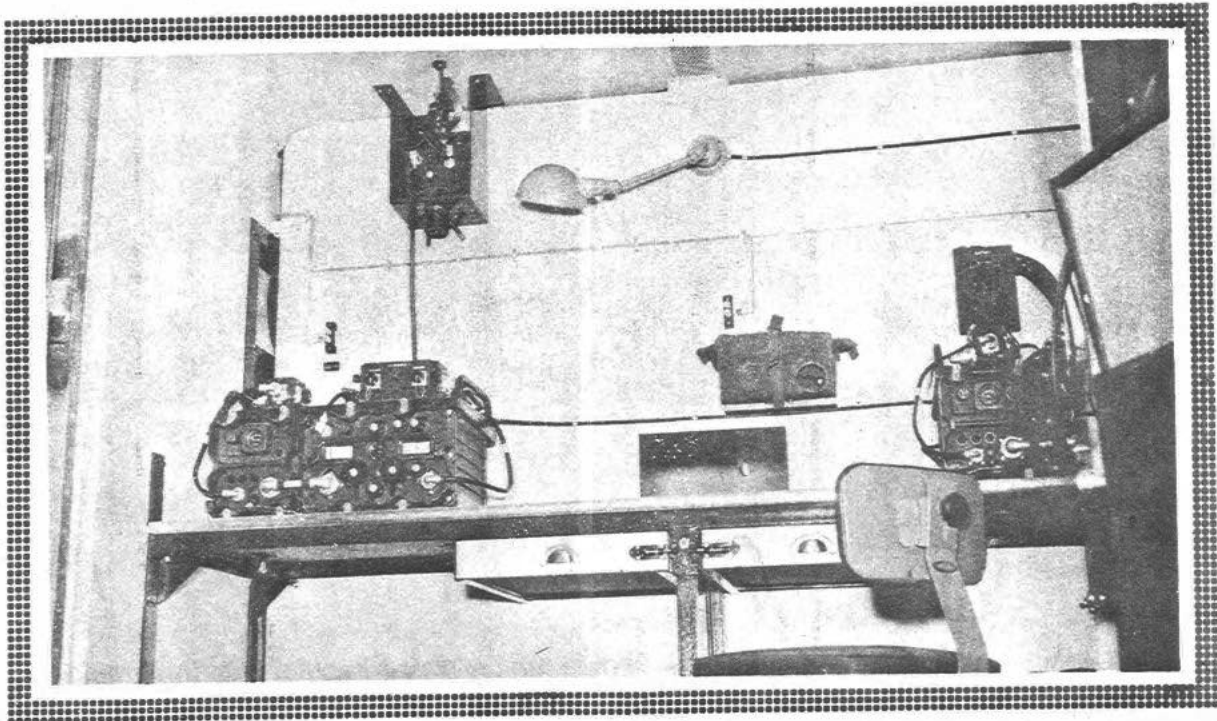
Serial 205-4-0

EQUIPMENT CHARACTERISTICS SHEET

for

RADIO STATION C42/42

in Truck, Sigs Van, 2-1/2 Ton, Cdn



Information for the above equipment may be obtained from Canadian Army
EME Manual Electrical L 450 - 459.

ARMY DEVELOPMENT ESTABLISHMENT
O t t a w a - C a n a d a

Issue 1

RESTRICTED

Date 7 Oct 60

RESTRICTED

Serial 205-2-1

EQUIPMENT CHARACTERISTICS SHEET

for **RADIO STATION C42/509 or C42/510**
in Truck, Cargo, 3/4 Ton, Cdn



Information for the above equipment may be obtained from Canadian Army
EME Manual Electrical - L 250 - 259.

ARMY DEVELOPMENT ESTABLISHMENT
O t t a w a - C a n a d a

Issue 1

RESTRICTED

Date 7 Oct 60

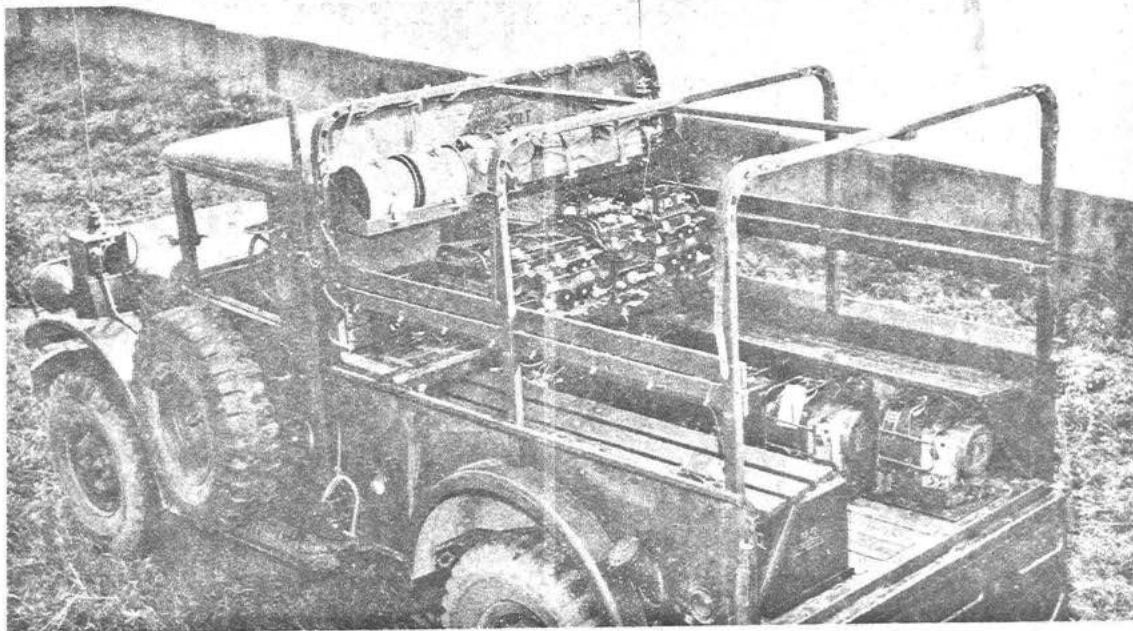
RESTRICTED

Serial 205-4-1

EQUIPMENT CHARACTERISTICS SHEET

for

RADIO STATION C42/42
in Truck, Cargo, 3/4 Ton, Cdn



Information for the above equipment may be obtained from Canadian Army
EME Manual Electrical - L 260 - 269.

ARMY DEVELOPMENT ESTABLISHMENT
Ottawa - Canada

Issue 1

RESTRICTED

Date 7 Oct 60

RESTRICTED

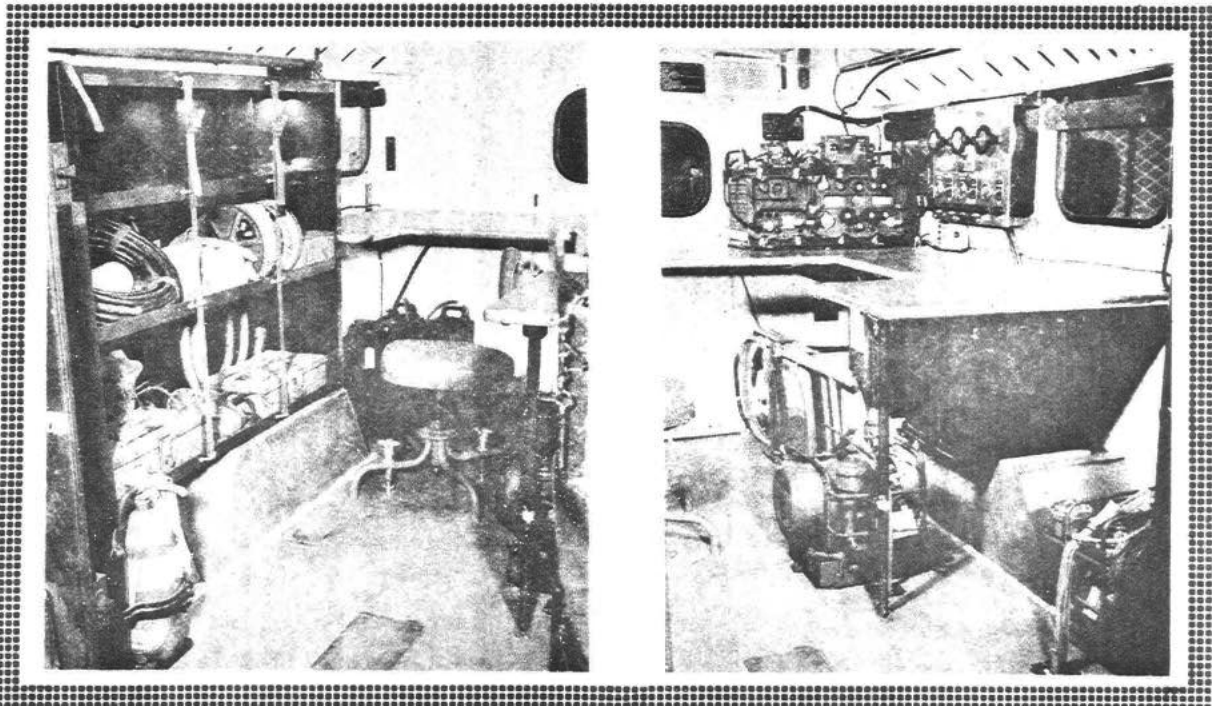
Serial 205-1-1

EQUIPMENT CHARACTERISTICS SHEET

for

RADIO STATION C42

in Truck, Panel, 3/4 Ton, Cdn



Information for the above equipment may be obtained from Canadian Army
EME Manual Electrical L 240 - 249.

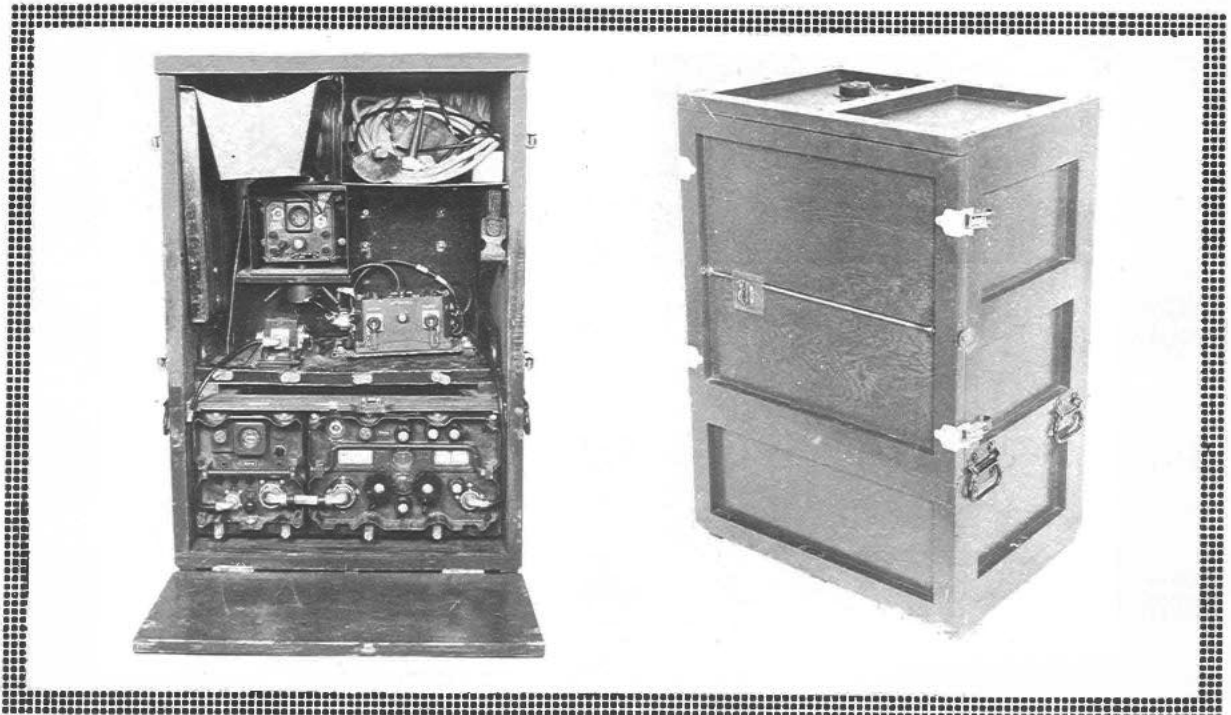
ARMY DEVELOPMENT ESTABLISHMENT

O t t a w a - C a n a d a

Issue 1

RESTRICTED

Date 7 Oct 60

EQUIPMENT CHARACTERISTICS SHEET*for***PACKAGING, NATIONAL SURVIVAL,
INSTALLATION KIT, RADIO SET C42**ROLE:

To provide a general purpose, self-contained, installation kit, that permits using a single C42 radio set in any type of vehicle, or as a ground station for National Survival Operations.

CLASSIFICATION:

Standard.

HARDWOOD RUNNERS

(2) 1 1/4 x 1 1/4 x 17 inches

DIMENSIONS (Outside - less runners)

Height - 36 inches
Width - 25 1/2 inches
Depth - 22 1/2 inches

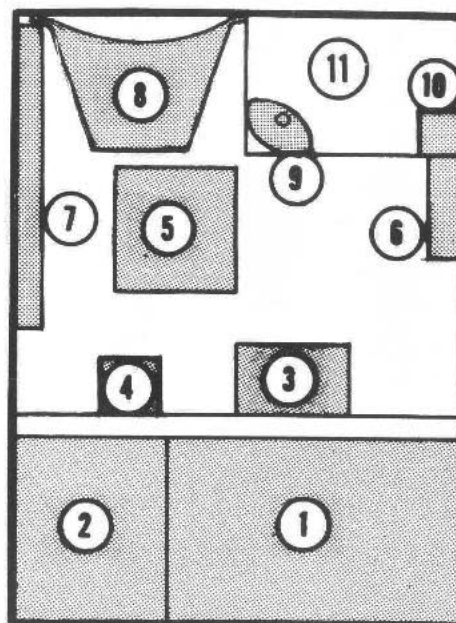
WEIGHT (complete)

250 lbs.

GENERAL DESCRIPTION

A wooden packaging, produced using standard box manufacturing processes, containing equipment as shown:-

1. Radio Set, C42
2. Power supply
3. Junction box 24 volt
4. Box junction 4 way
5. Aerial tuner
6. Hammer sledge 1/4 lbs
7. Battery tray
8. Base assy mounting
9. Spike antenna
10. Hydrometer
11. Signal satchel



MAJOR ITEMS NOT SHOWN AND PACKAGED SEPARATE

Batterys, Storage 12 V (2)
Bottle Polyithylene 1 qt (1)
Generator set gasoline PU 6008/U (1)
Antenna Rods
Can gasoline military C1 (1)
Can screw cap 1 qt (1)
Case spare parts (1)
Receiver Headgear & Microphone (1)

REFERENCE

AEE Schedule No 351620
DEE Project No 60-565

EQUIPMENT CHARACTERISTICS SHEET**RADAR SET AN/MPQ-501****DESCRIPTION**

The AN/MPQ-501 is a mobile fixed frequency, Ku-band, dual beam, pulsed radar equipment. This radar is used to detect and locate enemy mortars and other high angle weapons, to adjust and survey own artillery fire, and to provide battlefield surveillance. An analog computer automatically calculates the weapons grid co-ordinates from the radar positional data. This system is also used on descending projectile trajectories and projectile bursts and for computing the co-ordinates of their points of impact.

The equipment consists of a transmitter, receiver, computer, semi-parabolic reflector, Foster scanner, control units, and a display featuring B-type signal presentation. The engine generator unit consists of a 4-cylinder 20-hp air cooled gasoline engine, coupled to a 120/208 volt, ac, 400 cps, electric power generator. The radar set, engine generator, and the heat exchanger are mounted on the vehicle as a self-contained unit. The heat exchanger has a cooling capacity of 15,000 Btu/hr, and a heating capacity of 12,000 Btu / hr.

CLASSIFICATION - Standard A

STOCK NUMBER - 5840-21-840-4059 Radar Set AN/MPQ-501, Carrier Mounted M113A1 Cdn, Code 114134, EIS 5101.

5840-21-116-5563 Radar Set AN/MPQ-501, EIS 5092.

Code 114134

**DIRECTOR GENERAL ORDNANCE SYSTEMS
CANADIAN FORCES HEADQUARTERS - OTTAWA, CANADA**

GENERAL

Personnel requirements	- Two operators, one driver operator, and one NCO in charge.
IN and OUT of action	- IN - 5 min. OUT - 2 min.
Range	- Zero to 26,000 metres.
Azimuth	- Any 400 mil sector.
Angle of sight	- +213 units to -107 mils. - (+12° to -6°).

DISPLAY SYSTEM

Presentation	- A or B scope.
Range, long, variable	- Adjustable from 4,000 metres to 26,000 metres.
Long sweep, onset	- Zero to 22,000 metres.
Range, short	- 2,000 metres.
Azimuth display	- 360 mils.

COMPUTER OPERATIONAL LIMITS

Range	- 25,000 metres.
Azimuth	- 6400 mils + 400 mils (1 sector).
Elevation	- ±12,000 ft or ±150 mils.
Difference, range	- ±500 metres.
azimuth	- ±100 mils.
Extrapolation	- 160 mils.

BUILT-IN TEST EQUIPMENT

Performance monitor	- Transmitter power and receiver noise figure.
Echo box	- Transmitter frequency.
Dummy load	- Transmitter fault finding.
Oscilloscope	- Waveforms.
Tuning indicator	- Indicates correct local oscillator tuning.

TRANSMITTER

Wavelength	- 1.87 cm.
Frequency	- 16,000 Mc/s.
Band	- Ku
Power output	- 80 to 105 kw peak.
Pulse width	- 0.2 us
PRF short range	- 8333
long range	- 4167

RECEIVER

Type	- Superheterodyne.
Interm. Frequency	- Logarithmic/ Linear type 45 Mc/s.
Receiver bandwidth	- 6.5 Mc/s.
Receiver maximum gain	- 120 db.

ANTENNA

Type	- Dual-beam Foster scanner with semi-parabolic reflector.
Gain	- 45 db.
Beam width	- 16.5 mils horizontal. - 16.5 mils vertical.
Beam separation	- 40 mils.
Scan angle	- 400 mils.
Scan rate	- 20 scans per sec.
Controls	- Power driven or manual.

BUILT-IN AUXILIARIES

Radio Set AN/GRC-125.	
Radio Set AN/VRC-46.	
Air conditioning	- Cooling cap. 15,000 Btu/hr Heating cap. 12,000 Btu/hr (vehicle is insulated ventilated, heated or cooled).
Engine generator	- 10 Kw, 120/208 volt, ac, 3 phase, 400 cps.

COMPUTER SPECIAL FEATURES

Automatic centering if target at edge of display. Difference of eastings and northings provided for artillery ranging. Single or split beam extrapolation. Automatic computer reset. Target data in cartesian and polar co-ordinates.

DIMENSIONS AND WEIGHTS

DESIGNATION	Length in	Width in	Height in	Weight lb
Radar Set AN/MPQ-501, Carrier Mounted M113A1	191	100	132	25890
Radar Console	48	68	49	875
Antenna Group	90	63	56-100	3300
Engine-Generator	29	43	20	500
Air Conditioner - Condenser Unit	28	37	18	235
Air Conditioner - Evaporator Unit	24	22	27	160
Control Cabinet	24	24	15	123

REFERENCES

7610-21-111-8236 Operators Instructions AEEE GEN-106.
CA EME Manual Electrical O 610 to O 614.

PRELIMINARY DATA SUMMARY**for****RECEIVING SET, COUNTERMEASURES,
AN/PLR-501(XP-2)**

ROLE: The Receiving Set Countermeasures AN/PLR-501 (XP-2) is a small lightweight wideband video receiver for use in detecting and localizing amplitude and pulse modulated microwave sources such as radar sets and jamming equipment with the limits of direct line of sight.

DESCRIPTION: The receiver, commonly known as a "Radar Illumination Detector", can be carried and operated by one soldier. It will indicate the presence of pulsed radar signals within a wide azimuth sector, referred to as "field of view" and also determines approximate direction to the radar signal source.

The warning signal provided by the receiver when illuminated by a pulse radar is an audio tone at a pitch determined by the pulse recurrence frequency (PRF). This warning enables a patrol to take simple and effective countermeasures against ground-to-ground surveillance being conducted by enemy operated pulse-doppler (MTI) radar sets. Since MTI type radar is designed for the detection of objects which are in motion only, troops shall be alerted to remain stationary when illuminated by the radar beam; and proceed when the beam has passed them.

TECHNICAL CHARACTERISTICS:

Receiver Type	Direct Detection Video
Operating Frequency	2-40 Gc/s
Antenna	(1) Spiral 2-8 Gc/s (2) Horn 8-20 Gc/s (3) Horn 20-40 Gc/s
Pulse Response	0.05 usec to 5 usec
PRF Response	400 - 10,000 pulses per second
System Sensitivity	Antenna (1) - 47 dbm/sq cm Antenna (2) - 50 dbm/sq cm Antenna (3) - 37 dbm/sq cm
Range	Under line of sight conditions can detect Radar Set AN/PPS-4 at more than 8000 yds.
Field of View	1600 mils to 500 mils (depending on Range and Frequency).
Azimuth Accuracy	\pm 100 mils
Signal Indication	Audio tone in headset at PRF of radar
Power Requirements	-5.4v, + 1.35v, at 7 to 12 ma mercury cell battery
Dimensions	7"h x 2-1/2"w x 2"d
Weight	21 ozs

PUBLICATIONS:

Operators instructions, Receiving Set Countermeasures AN/PLR-501 (XP-2) GEN-71. Restricted. Jan 64.
Technical Report, Receiving Set Countermeasures AN/PLR-501 (XP-2) AEEE-36. Restricted. Feb 64.
Engineering Report, Receiving Set Countermeasures AN/PLR-501 (XP-2) Sub-Project 63-785. Confidential. Apr 64.

RESTRICTED

Serial 240-1-1

EQUIPMENT CHARACTERISTICS SHEET

for

CHARGER, BATTERY



ROLE: The Battery Charger provides a nominal 24 volts DC at a maximum of 16 amperes for charging batteries.

STOCK NUMBER: 6130-21-841-1746.

POWER REQUIREMENTS: 115 volts or 230 volts AC, single phase, 60 cycles

OUTPUT: Voltage - 24 volts DC nominal, (30 volts DC max)
Current - 16 amperes max (500 watts max).

DIRECTOR GENERAL ORDNANCE SYSTEMS - OTTAWA, CANADA

Issue 1

RESTRICTED

Date FEB 67

PHYSICAL DATA:	Height	Width	Depth	Weight
	7-5/8 in.	13-1/2 in.	12-1/4 in.	42-1/2 lbs.

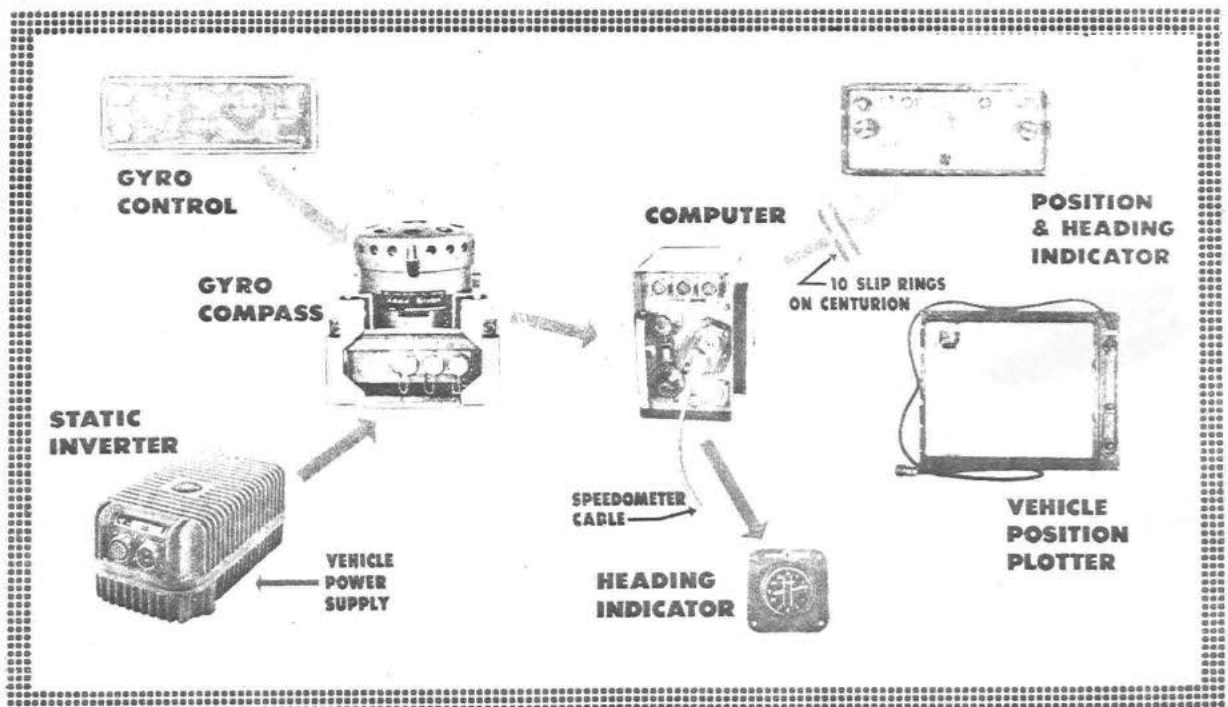
Note: Mounting can be either upright or upside down, but to ensure adequate air circulation space must be allowed at top and bottom of equipment.

FUSE PROTECTION: Input - 7.0 amperes
Output - 25 amperes (rms rating is due to pulsed nature of SCR control).

ADJUSTMENT: Internal

REGULATION: \pm 0.5 volt no load - full load (batteries connected)
 \pm 0.5 volt for 10% input voltage variation.

DESCRIPTION: The Battery Charger is operated from 115 or 230 volts AC 60 cycles, mains. The output is controlled and regulated at a preset level of 27.5 volts using solid state devices. The charging current delivered will vary between zero and a maximum of 16 amperes, depending on the condition of the batteries being charged, and is at its lowest when batteries are fully charged. The equipment is built on the chassis-panel concept and is housed in a ventilated aluminum case.

EQUIPMENT CHARACTERISTICS SHEET*for***NAVIGATIONAL SET,
LAND VEHICULAR, C-1**

ROLE: This equipment continuously indicates the position and heading of the vehicle in which it is installed.

COMPONENT	DIMENSIONS	WEIGHT (lbs)	SUPPLIER
Compass, Gyro C ₁	12.2" by 12.5" by 13.9"	45	S.G. Brown
Control Unit C ₁	3.4" by 10.1" by 5.9"	10	
Inverter Power Static C ₁	5.4" by 6.5" by 12"	16	
or			
Compass, Gyro C ₂	14" by 14.1" by 14.1"	86	Sperry
Control Unit C ₂	3.9" by 12.1" by 9.2"	14	
Inverter Power Static C ₂	6" by 6" by 12"	27	
Computer, Navigational	7.8" by 5.6" by 9.25"	11.25	A.E.L.
Indicator, Heading and			
Position (IHP)	4" by 9.5" by 6.2"	6	
Plotter, Vehicle Position			
(PVP)	2.25" by 20.4" by 16.4"	16.25	
Indicator, Heading			
(IH)	4" by 4" by 3.8"	6	

GENERAL DESCRIPTION: The Navigational Set consists of a north seeking Gyro-Compass, a Power Supply, a Computer, an Indicator Heading and Position (IHP), a Plotter Vehicle Position (PVP), and an Indicator Heading (IH).

The computer converts the distance information received from the speedometer cable and the heading information from the compass into electrical pulses proportional to the East/West and North/South motion of the vehicle. These pulses are fed to the IHP where they drive two counters to display a eight figure grid reference. The counters are set to the initial grid reference by manual controls and can be adjusted while running.

The computer also re-transmits the heading signal from the compass which is displayed at the IHP on a two inch dial, and at the Heading Indicator.

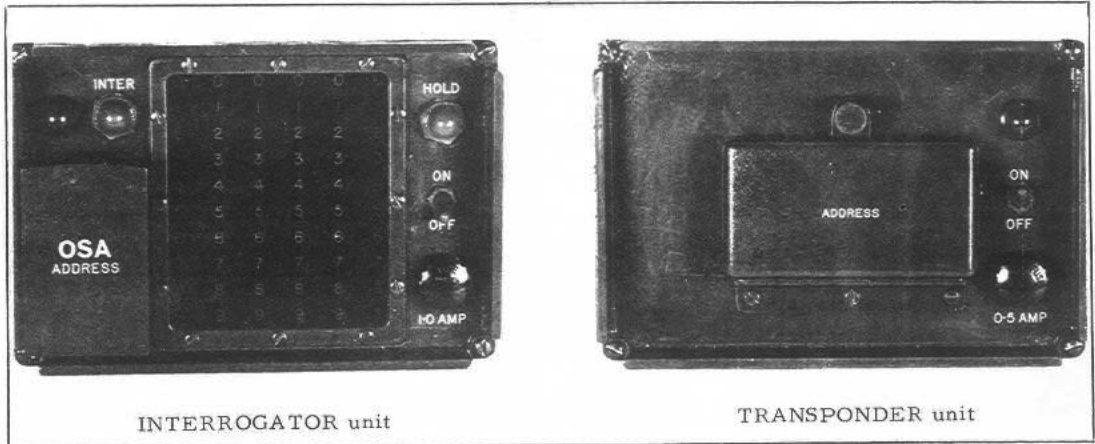
The PVP is connected to the IHP by means of a flexible cable. It displays the position and heading of the vehicle as an arrow of light projected through any Army map of any standard scale. The arrow is set to the initial grid reference (or adjusted while running) by means of four push button switches.

PUBLICATION REFERENCES: Production Specification CA E126, Issue 2, dated 10 May 62 for Computer and Display Components.

Operators Handbook, dated Sep 62.

Purchase Description PD 113A for Gyro Compass components.

Cnd Army EME Manual Electrical W630 to W633.

PRELIMINARY DATA SUMMARY**for****POSITION INTERROGATION AND
TRANSMISSION SYSTEM (PITS)**

ROLE: The Position Interrogation and Transmission System (PITS) provides a means of adapting communication radio sets to transmit and display on command the map reference of any vehicle fitted with a NAVIGATION SET, Land, Vehicular, C1 (NAVAID).

PHYSICAL DATA:

Interrogator	-	Width	7-1/4 in
		Height	4-3/4 in
		Depth	10-3/4 in
		Weight	13.5 lbs
Transponder	-	Width	7-1/4 in
		Height	4-3/4 in
		Depth	9 in
		Weight	11.0 lbs

POWER REQUIREMENTS:

Interrogator: at 28V DC Input 400 ma
 Transponder: at 28V DC Input 200 ma

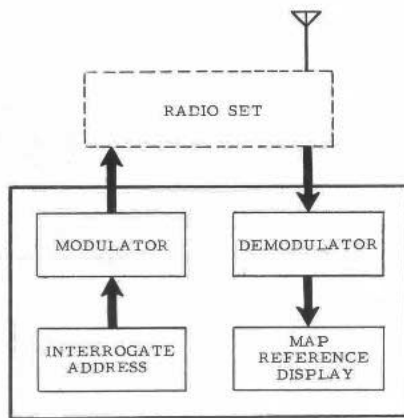
AUXILIARY EQUIPMENT

- 1 - Navigational Set, Land, Vehicular (C1) with Modified IHP, (C1) or Experimental Computer-Indicator

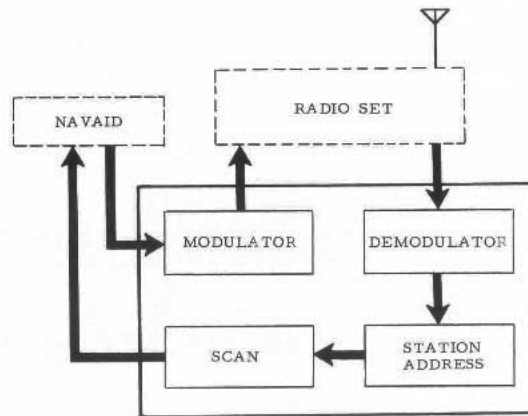
DIRECTOR GENERAL ENGINEERING (LAND) - OTTAWA, CANADA

DESCRIPTION:

The PITS is designed to be used in conjunction with a vehicle NAVAID, and the communication radio set, such as the RADIO SET C42. The system consists of an INTERROGATOR unit (at the control station) and a number of TRANSPONDER units installed in vehicles equipped with NAVAID. As many as 100 addresses for TRANSPONDER units can be accommodated in each radio set.



INTERROGATOR unit, block diagram

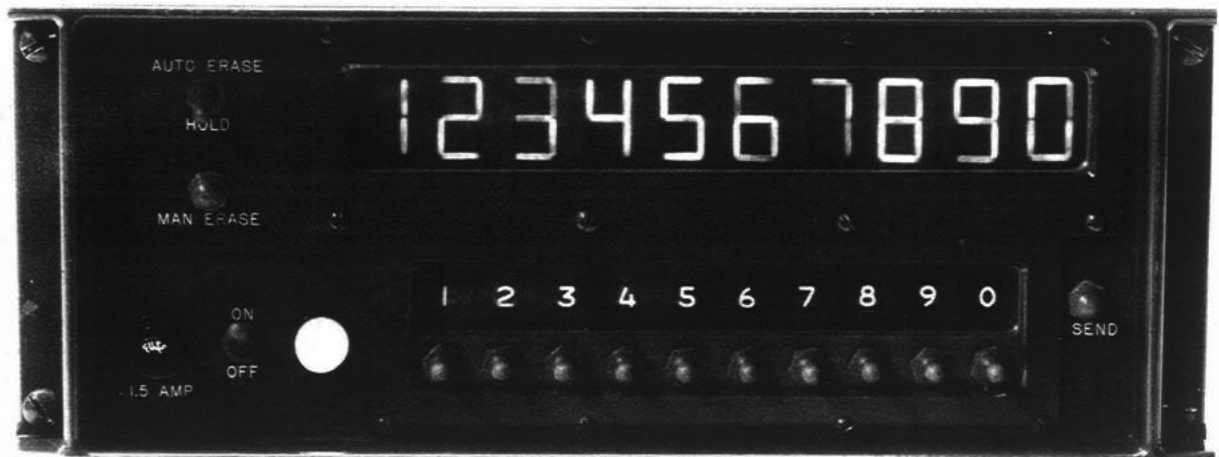


TRANSPONDER unit, block diagram

Selective calling and automatic relaying of the map reference data as displayed on any particular NAVAID IHP or Computer-Indicator (CI) within the fleet is initiated by the operator at the Control Station, and takes place over the communication net on the tactical radio sets.

REFERENCE:

File Project L 10055-60-519

PRELIMINARY DATA SUMMARY**for****DEVICE FOR AUTOMATED RECEPTION
AND TRANSMISSION (DART)**

ROLE: The Device for Automatic Reception and Transmission (DART) provides a means of adapting vehicle radio communication sets to transmit and receive digital format messages.

PHYSICAL DATA: Width 12-5/8 in.
Height 5 in.
Depth 11 in.
Weight 18.5 lbs.

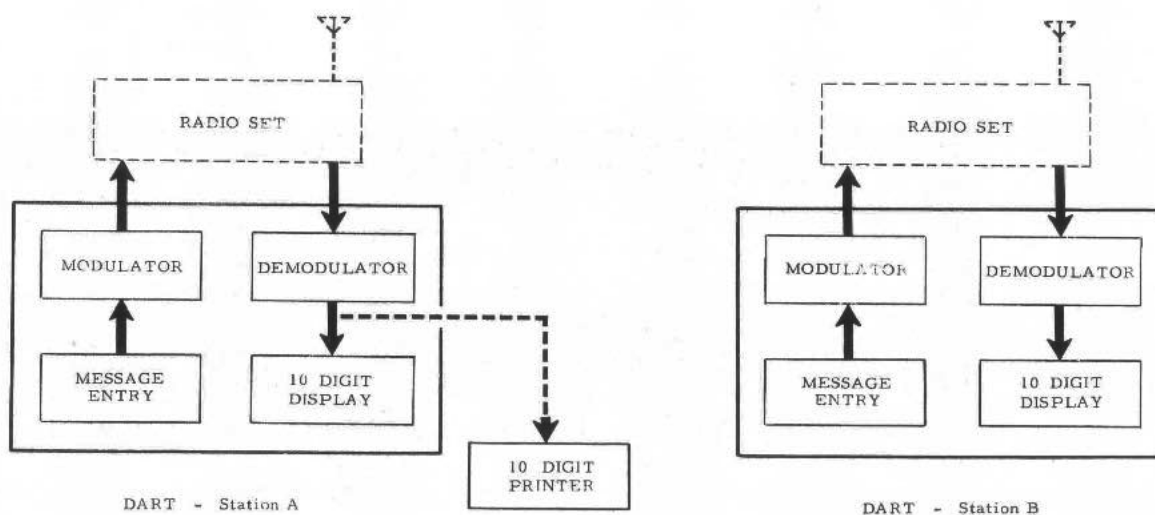
POWER REQUIREMENT: 0.5 amp at 28v DC display OFF
1.4 amp at 28v DC display ON (all 8's)

AUXILLIARY EQUIPMENT: Format Code Book.
Ten-column Decimal Printer (optional).

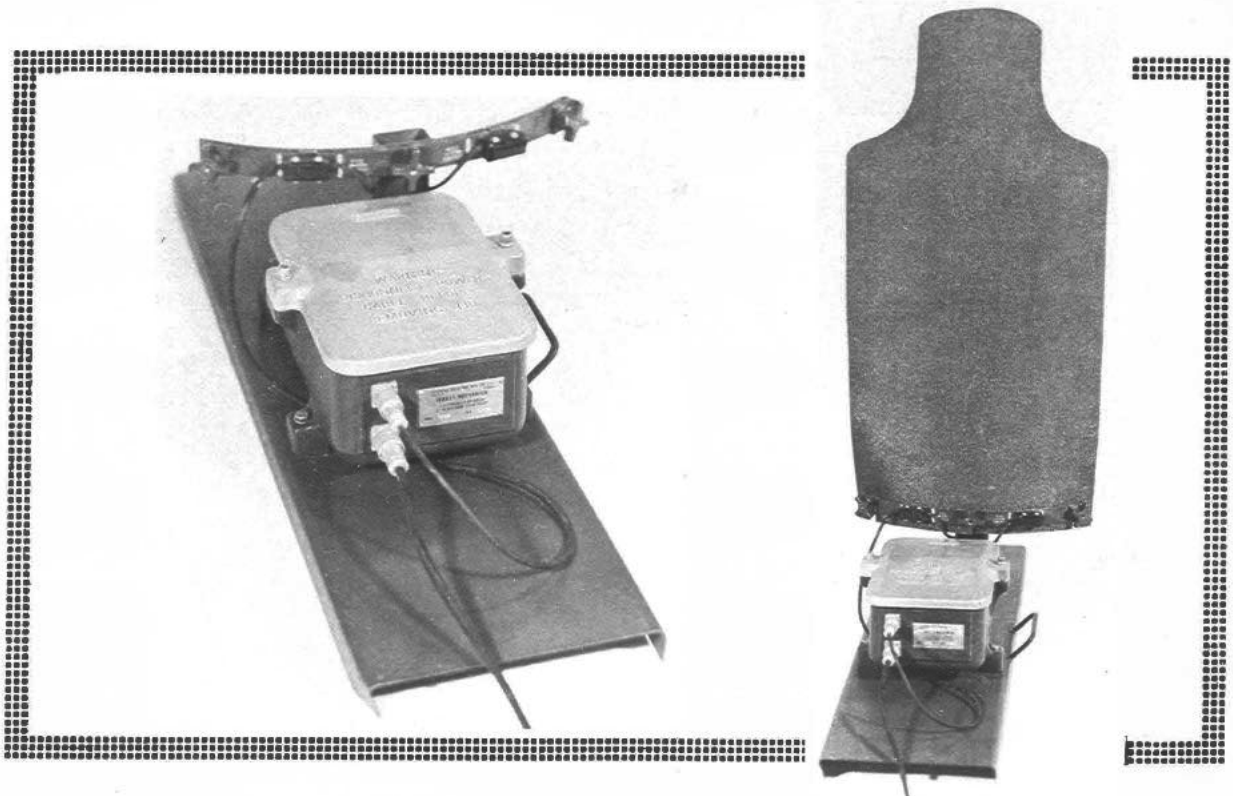
CONTROLS: ON-OFF power.
SEND push-button.
AUTO ERASE (In this position the received display is erased by the reception of the next message.)
HOLD (In this position a message will remain displayed until erased manually by the Manual Erase Push-Button.)
MANUAL ERASE push-button.

DESCRIPTION: The DART system is designed to be used in conjunction with vehicular radio communication sets to transmit and receive digital format messages.

Message input is set by means of ten push-button "decimal" switches. The output is displayed on ten in-line seven segment neon display units. Each numeral is 3/4 in. in height.



REFERENCE: File Project L10055-60-519.

EQUIPMENT CHARACTERISTICS SHEET*for***ELECTRICALLY CONTROLLED
MECHANICAL TARGET**ROLE

Used as an aid for rifle marksmanship training.

CLASSIFICATION

Standard

WEIGHT

70 lbs

DIMENSIONS

Length - 3 ft 4 ins
Width - 1 ft 8 ins
Height - 9-1/2 ins

POWER REQUIREMENTS

The Mechanical Target is designed to operate on 115 volts, AC, 60 CPS.

GENERAL DESCRIPTION

The Mechanical Target is permanently installed in a pit on the firing range. It is a remotely controlled, electrically operated unit which raises and lowers a target silhouette when actuated by an operator from behind the firing position. It automatically lowers the target when the target is struck. The unit consists of a replaceable fibreglass target mounted on a pivot shaft, an electric motor, gear case, connecting link assembly with actuating relays, switches and cable assemblies. The motor, gear case, and relays are enclosed in an aluminum casting which is mounted on a metal base.

REFERENCES

7610-21-111-2388 Manual, Technical, operating electrically controlled mechanical targets

DEE Project Number 58-317

AEET Schedule Number 350,000

RESTRICTED

Serial 282-1-0

EQUIPMENT CHARACTERISTICS SHEET

for

**ILLUMINATOR-VIEWER,
INFRARED, AN/TAX 501**



ROLE: This equipment is used for medium range observations at night. In normal atmospheric conditions, man-size objects can be observed at distances up to 500 meters.

CLASSIFICATION: Standard A

DESCRIPTION: This equipment is portable, consisting of an illuminator which produces an infrared beam 3 degrees wide and a telescope employing a mirror optical system of 16 cm focal length. Within the telescope is a high voltage power supply, and an image converter. The unit has telephone facilities and is mounted on a tripod.

OPERATING CHARACTERISTICS:

Range - up to 500 meters
Magnification - 3 times
Angular displacement - 360 deg
Evaluation without displacement of the front support legs.
1. 30 deg for bearing 0 deg
2. 20 deg for bearing \pm 50 deg
3. 0 deg for bearing \pm 90 deg
Focusing adjustment - 30 meters to infinity
Reticle, scale - horizontal 30-0-30 mils (Eur)
vertical 30-0-30 mils (Eur)
(6000 European mils correspond to 360 deg)

TECHNICAL DATA:

Illuminator - Diameter of mirror 34 cm
Beam 3 deg
Power 200 watts
Telescope -
Focal length 16 cm
Field of view 14 deg
Image converter RIV with cartridge
Eye piece inclination 50 deg

POWER

Requirement - 24 volts, 300 watts, dc generator.
or
24 volts, storage battery
Consumption - 230 watts

WEIGHTS AND DIMENSION

Weight - total weight 119 lb
Dimensions, (tripod included)
length - 51 in
width - 31 in
height - 41 in to 58 in

PUBLICATIONS:

CAEME Manual Elect W700
W702
W703

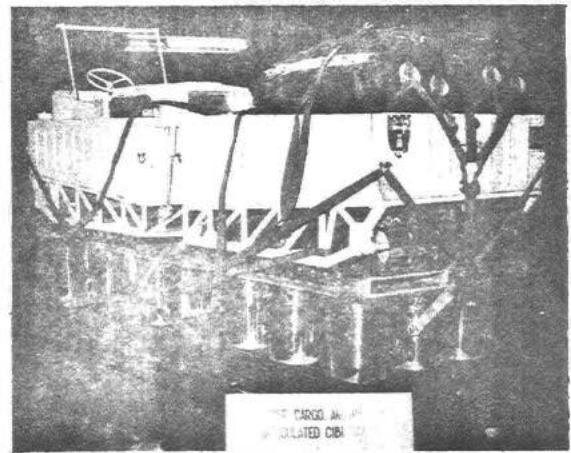
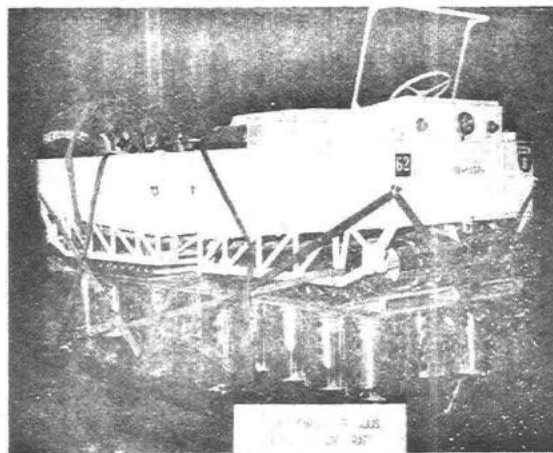
PRELIMINARY DATA SUMMARY

FOR

AERIAL DELIVERY KIT

for

Carrier Cargo, Amphibious Articulated C1B1 "Rat"



ROLE: To provide aerial delivery for Carrier Cargo Amphibious, Articulated C1B1 "RAT".

WEIGHT:

Platform - 665 lbs
Vehicle - 1600 lbs
Payload - 600 lbs

Decelerator Cans - 3 lbs each
Parachutes - 128 lbs each

DIMENSIONS:

Length - 13 ft 1 in (approx)
Width - 6 ft 8 in (approx)
Height (includes vehicle windshield down) - 6 ft 8 in (approx)

ARMY DEVELOPMENT ESTABLISHMENT
O t t a w a . . . C a n a d a

Main Items:

Platform Cargo Aerial 6000 lbs	1
Plywood 3/4" x 4' x 12'	1
Decelerator Cans (empty vehicle)	27
(for each 70 lbs cargo add one decelerator can assy under rear unit).	
Parachutes G-12	2
Binder Assys	14
Fasteners strap cargo tie-down quick fit	18
Straps tie-down 15 ft	14
Platform load parachute and riser stowage flat	1
Harness Assy securing main parachute	1
Clevis large	2
Clevis small	4
Line deployment	1
Sling platform 156 in	2
Parachute Cargo extraction 15 ft	1
Pack Cargo extraction	1
Line Assy, Cargo extraction parachute	1
Line Release Cargo extraction parachute	1
Wire brass shear .032")	
Tape pressure sensitized)	
Wadding, cellulose heavy)	As Required
Thread Cotton five cord)	
Cord Nylon 450 lb TS)	

GENERAL DESCRIPTION

The aerial delivery kit consists of the platform cargo aerial delivery used for carrying the load, decelerator can assemblies used to provide shock protection for the equipment, one plywood sheet to provide a platform for the vehicle. A wedge shape ramp at each end of the plywood sheet is provided so that the vehicle exerts pressure evenly along its entire length.

The two G-12 parachutes are stowed on the back of the rear unit on a platform load parachute and riser stowage flat.

The remaining items listed above are used to secure the vehicle on the platform and attaching the parachutes for aerial delivery.

REFERENCE

ADE drawing schedule 900030

This information is for prototype equipment and may be changed for subsequent equipment.

PRELIMINARY DATA SUMMARY**FOR****INSTALLATION of RADIO SET****AN/PRC 509 or AN/PRC 510 in L-19 AIRCRAFT**

ROLE: To provide a VHF FM radio set for communications on ground tactical nets.

BASIC EQUIPMENTS: Airplane, Observation L-19 (Cessna) modified for WS #62 to
RCAF EO 05-125A - 6B/1
Radio Set AN/PRC 509 or AN/PRC 510
(See Serial No. 200-4-0)

WEIGHT: 18-lbs

FREQUENCY RANGE: 26.3 MC to 38 MC

DIMENSIONS: (radio set) AN/PRC 509 or 510

Height - 18 1/2-ins

Width - 10-ins

Depth - 5 1/2-ins

AN/PRC 509

38 MC to 55 MC

AN/PRC 510

BATTERY: BA 349/U

HEADSET: H 5002/PRC

HANDSET: H 5003/PRC

ARMY DEVELOPMENT ESTABLISHMENT
O t t a w a . . . C a n a d a

GENERAL DESCRIPTION:

The radio set AN/PRC 509 or AN/PRC 510 is installed in the L-19 Aircraft to provide interim VHF FM communications on ground tactical nets and has a range of 10 miles at a height of 50 feet. The existing WS #62 antenna is used, but modified to provide better radio reception.

The battery, headset and handset normally provided with the radio set AN/PRC 509 or AN/PRC 510 are utilized.

To modify the antenna a strain insulator is inserted between the lead-in wire and the main V shaped element. The lead-in wire thus forms a straight wire type antenna approximately 80 inches long.

A co-axial lead is fitted between the radio set and the antenna insulator as it enters the skin of the aircraft.

A webbing strap is provided to secure the radio set into the map compartment.

A special co-axial adapter is provided to permit a quick release of the co-axial lead in the event that it is necessary to jettison the aircraft door.

KIT REQUIRED FOR INSTALLATION OF AN/PRC 509 OR AN/PRC 510:

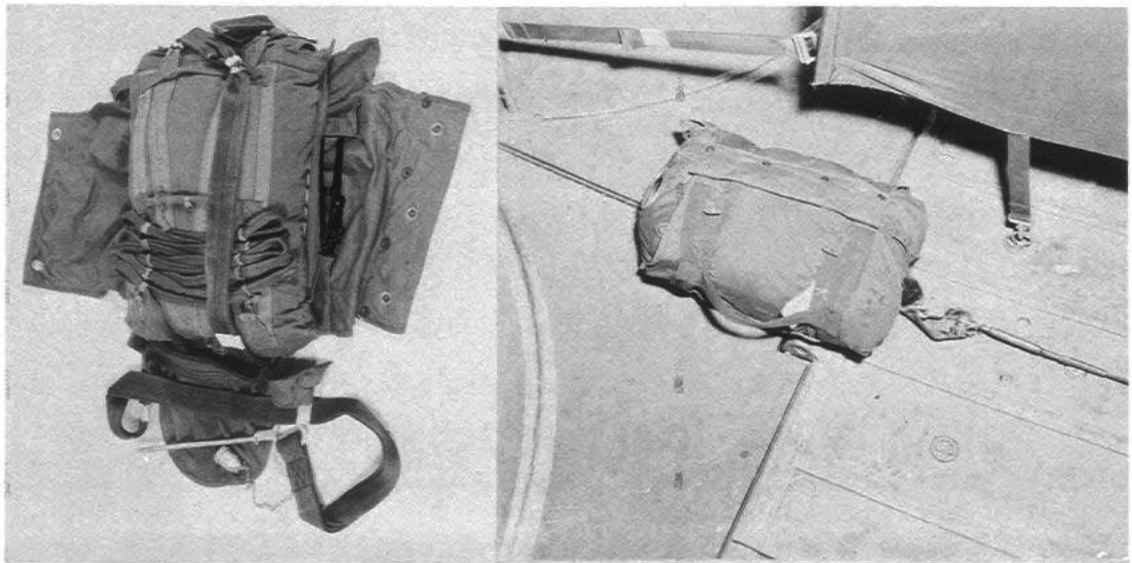
Stock No. 5821-21-109-6537

Installation Kit Electronic Equipment, radio set VHF,FM, airplane observation L-19 (EIS 1407) consisting of the following:

<u>Part No.</u>	<u>Nomenclature</u>	<u>Qty</u>
a. RGAF Ref 10EC24567	Strain insulator	1
b. ADE C350159	Harness assembly	1
c. ADE B350164	Cable assembly	1
d. ADE B350196	Adapter assembly safety	1

REFERENCES:

Canadian Army EME Manual, Aviation Equipment D210
Technical Specification - OS 234 Radio Set 509 and OS 200 Radio Set 510
Operator Handbook (interim) for Radio Set AN/PRC 509 and 510 d/Mar 56
DQMG (D&D) Report No. 92 d/15 Mar 60 (installation) AN/PRC 509 and 510

PRELIMINARY DATA SUMMARY**FOR****PACK, HANG-UP RELEASE KIT****ROLE**

To provide a means of rescuing a parachutist who has accidentally become hung-up behind an aircraft by a misrouted static line.

WEIGHT

51 lbs. (approximate)

DIMENSIONS

(approximate)

Length - 22"

Width - 14"

Height - 10"

ARMY DEVELOPMENT ESTABLISHMENT
O t t a w a . . . C a n a d a

MAIN ITEMS

Outer Pack - Body	- 1
Metal free deployment bag W/static line	- 1
T-10 Parachute Canopy	- 1
7 ft Risers W/eyebolt and chuck assembly	- 1
18" Bolt cutters	- 1

GENERAL DESCRIPTION

This hang-up release kit consists of an outer pack which contains the bolt cutters, the T-10 rescue canopy in a metal free deployment bag, a set of 7 ft risers which have the eyebolt and chuck assembly fixed to the free end.

For use the static line snap fastener of the pack is attached to a strong point in the aircraft in the vicinity of the paratrooper doors. See Fig 1. Upon a "hang-up" occurring the despatcher pulls the ripcord of the outer pack, opening the pack. In the open pack the T-10 canopy in its deployment bag, the bolt cutters and risers with the eyebolt and chuck assembly can be seen. See Fig 2. The despatcher takes the eyebolt and passes it from front to rear through the anchor line fasteners of the group which contains the hung-up man's snap fastener. He then pushes the chuck assembly onto the tapered end of the eyebolt. The bolt cutters are now taken and the anchor line is cut, releasing the group of snap fasteners which permits the hung-up man to fall away from the aircraft deploying the T-10 canopy from the kit.

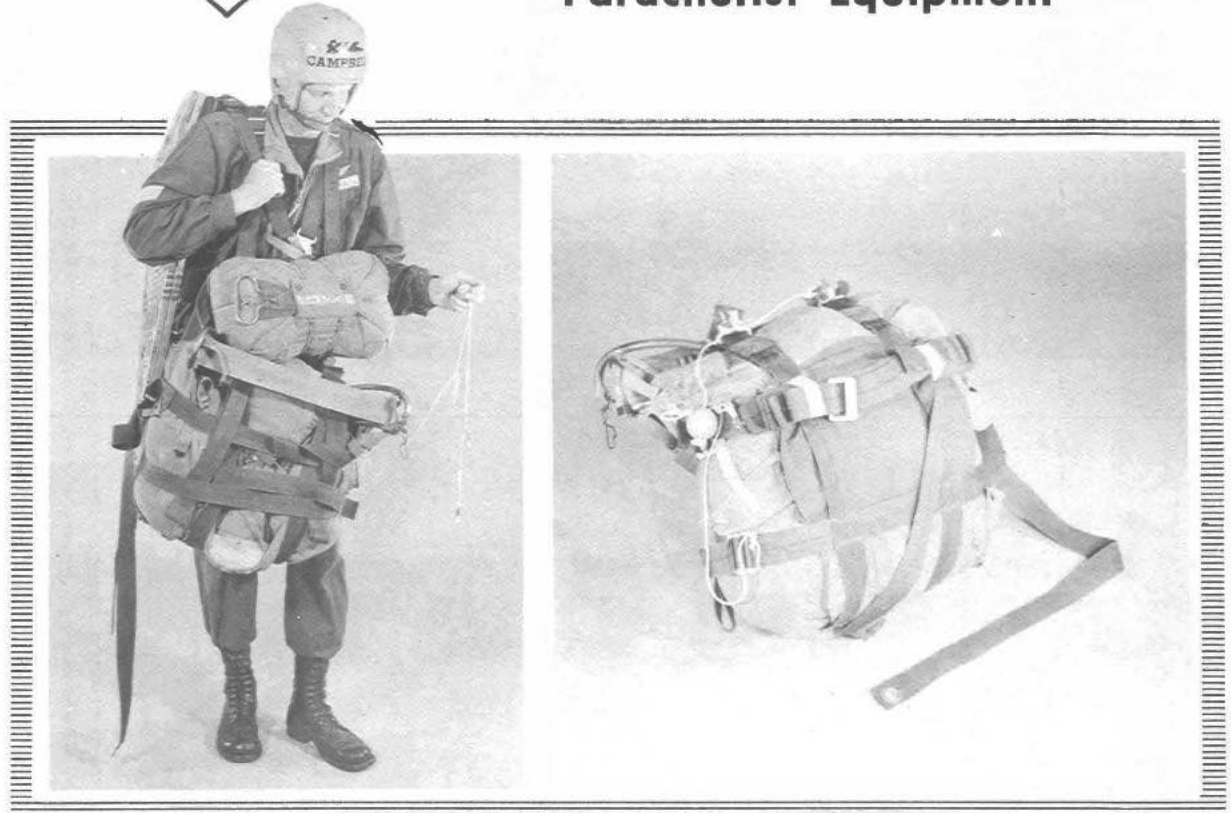
REFERENCE

ADE drawing schedule 308121.

PRELIMINARY DATA SUMMARY

FOR

SLING ASSEMBLY, Parachutist Equipment



ROLE

To provide a means for the carriage and release of survival and combat equipment by a parachutist during exit from an aircraft and descent to the ground.

WEIGHT

3 lbs (Approx)

DIMENSIONS

2-in x 8-in x 11-in (when packed in canvas pack)

ARMY DEVELOPMENT ESTABLISHMENT
O t t a w a . . . C a n a d a

COMPONENTS

Straps	- 4)	
Quick release snaps	- 2)	
Leg strap	- 1)	All interconnected
Release line	- 1)	into an integral
Lowering strap 20-ft	- 1)	harness assembly.
Canvas pack 2-in x 8-in x 11-in	- 1)	

GENERAL DESCRIPTION

The sling assembly parachutist equipment consists of four straps to retain the load; two quick release snaps which connect the loaded sling to the parachute harness "D" rings and provide the quick release for lowering the load during descent; a leg strap; a release line to activate the quick release; a 20 foot lowering strap and a canvas pack to contain all the above items.

In operation all items are removed from the canvas pack. The four straps are laid out, two in a horizontal position and two in a vertical position, crossing each other to retain the load. The load is placed over these four straps with the top of the load in line with the quick release snaps, the four straps are then fastened and tightened over the load.

The paratrooper can board the aircraft carrying the loaded sling assembly by hand. At a predetermined time before the jump he can attach the two quick release snaps to his parachute harness "D" rings and attach the lowering strap to his harness lift web.

When rifle and snowshoes are being carried the lowering strap is passed under the straps attachment snowshoes prior to being attached to the parachute harness main lift web. The rifle and snowshoes load is then slung over the parachutist's shoulder.

The legstrap is passed over the slung load and attached at the quick release snap after passing behind the paratrooper's legs.

At the proper time during descent the paratrooper releases the load for lowering by pulling the release handle. The rifle and snowshoe load slip off his shoulder and slide down the strap.

REFERENCES

ADE drawing schedule 352048.

RESTRICTED

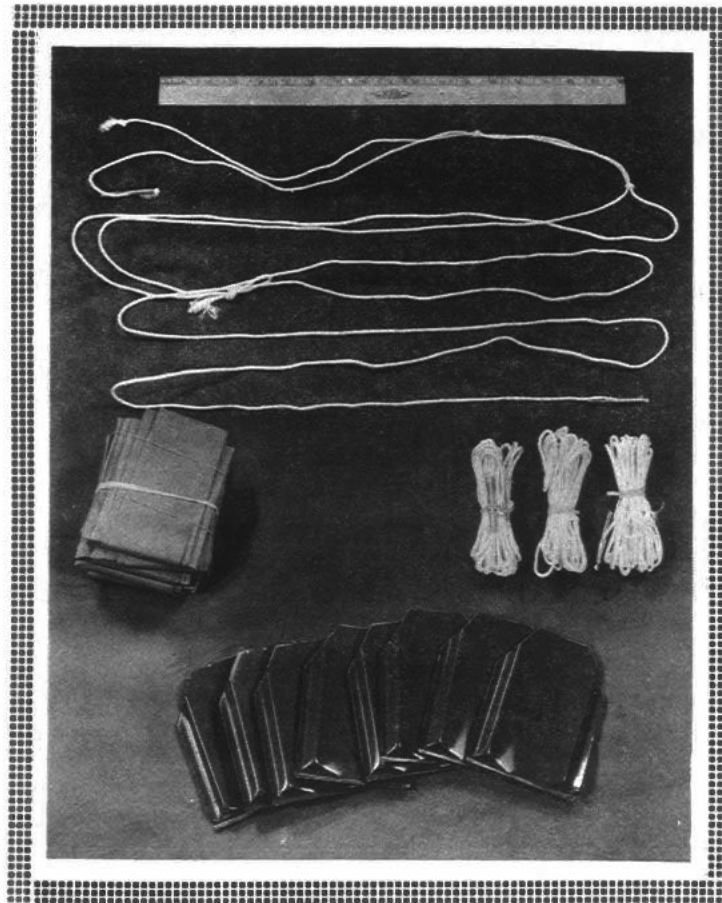
Serial

500-4-0

EQUIPMENT CHARACTERISTICS SHEET

for

SUPPORT KIT OVERHEAD PROTECTION C1



ROLE

The SKOP C1 is designed to meet the requirements for a protective structure for Type I shelters.

CLASSIFICATION

Standard "A"
NATO Stock No. 4240-21-113-0922

ARMY EQUIPMENT ENGINEERING ESTABLISHMENT - OTTAWA, CANADA

Issue 1

RESTRICTED

Date JAN 64

WEIGHT AND DIMENSIONS

(Packaged Kit) 8" x 4" x 2" (1/27 cu ft)
Weight is under 2 lbs.

COMPONENTS

Anchors:

Eight aluminum anchors, each measuring 6" x 4" x .032"
treated to darken colour and reduce shine.

Cordage:

Four assemblies of terylene cord adjustable, for length
and tensioning, each approximately 13 feet long.

Membrane:

One sheet of camouflage - coated polyester film
measuring 8' x 5' x 3 mil thick

PRELIMINARY DATA SUMMARY

FOR

BOX, HAND TOOLS
Cat. No. 5140-102-7450



OPERATIONAL ROLE:

This box was designed to hold tools for RCE tradesman in the field. This box is an item of tool kit, mason and concrete finishers.

WEIGHT:

Empty - 12 lbs 5 ozs
Filled - 36 lbs 8 ozs

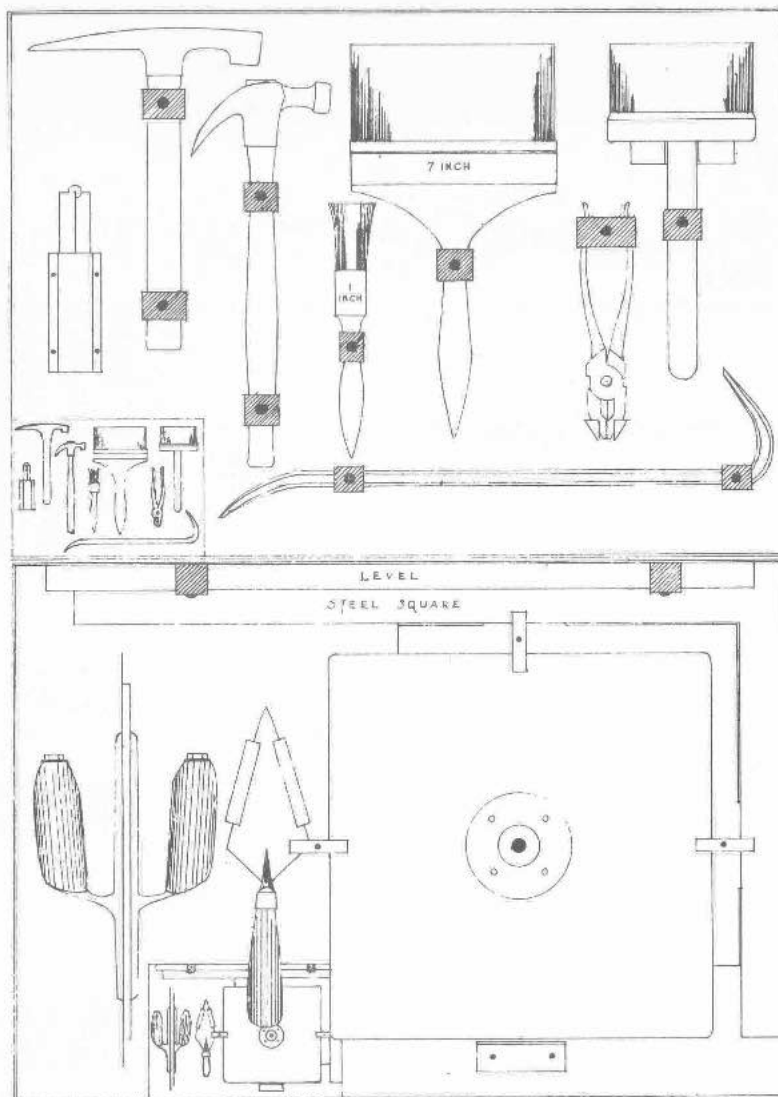
CLASSIFICATION:

Standard - Feb 58

DIMENSIONS:

Length 26 1/2 ins
Width 18 1/4 ins
Height 5 3/4 ins

ARMY DEVELOPMENT ESTABLISHMENT
O t t a w a . . . C a n a d a



Tools in Lid (upper) and in Box (lower).

GENERAL DESCRIPTION

The box is constructed of 18 gauge (0.046 in) aluminum sheet.

The lid is attached to the box with a piano type hinge which extends the full length of the box. Aluminum locating pieces are fitted inside the box and the lid for some of the tools, others are held by straps of webbing fitted with press studs. A carrying handle of heavy webbing is rivetted to the front edge of the box. Two straps of webbing fitted with buckles are rivetted to the lid and box near the ends to hold the box closed.

A hasp and staple to provide for a padlock are also rivetted to the lid and box. A steel padlock, Type EF 1 inch CQC No 1G/312017-10 is provided to lock the box.

The box is strongly made to resist rough usage. When filled with its tools, it can be easily carried by one man.

REFERENCE:

DED drawing No. 282.

For listing of tools in box see E.I.S. 697 dated Apr 57.

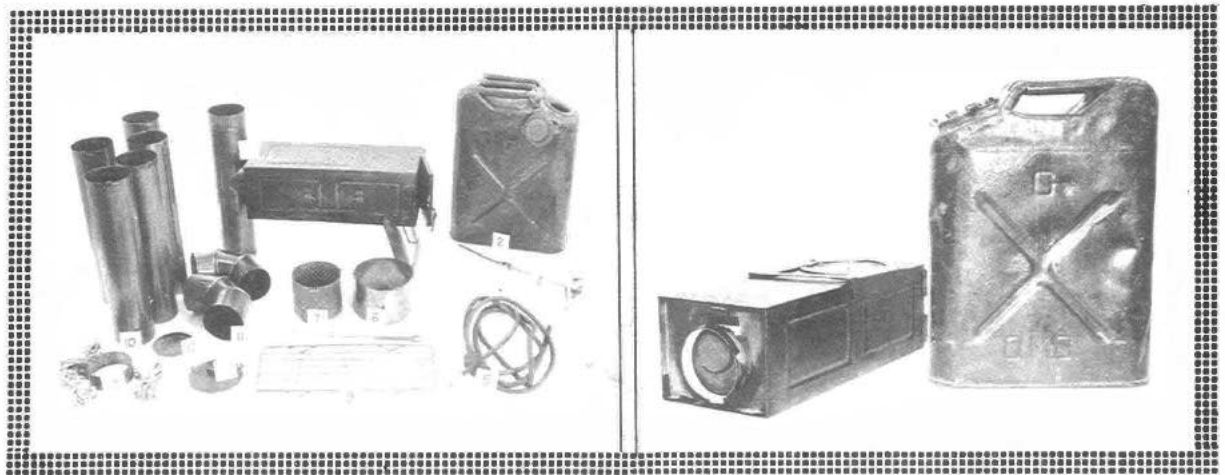
RESTRICTED

Serial 500-2-0

EQUIPMENT CHARACTERISTICS SHEET

for

SPACE HEATER, 10,000 to 20,000 BTU, CI



ROLE: This heater is primarily a space heater for use in shelters, bivouacs and small tents. It may also be used for minor cooking and for heating water.

CLASSIFICATION: Standard

DATE: Mar 1959

WEIGHT (Packed): - 20 lb

DIMENSIONS:

Length - 19³/₄"
Width - 7³/₄"
Depth - 6¹/₄"
Cubage - 0.56

HEAT OUTPUT:

10,000 to 20,000 BTU

FUELS USED:

Fuel oil, leaded or clear gasoline, kerosene, diesel fuel, thin crankcase oil, wood, charcoal

ARMY DEVELOPMENT ESTABLISHMENT
O t t a w a - C a n a d a

ISSUE 1

RESTRICTED

Date 22 DEC 59

GENERAL DESCRIPTION

This space heater consists of a body assembly with a hinged door at the front end and a smoke outlet fitting in the rear end designed to accept a tee type stovepipe fitted with a base cap.

A folding frame hinged on the sides of the body near the front forms two feet at the front and a tee stovepipe fitted to the smoke outlet hole at the rear of the body forms the third foot. The feet raise the body 6 in above the floor.

Five lengths of 1/4 in diameter stovepipes together with two adjustable elbows form the smoke stack.

The burner is of the pot type and fits in a hole in the bottom of the body. A windshield is provided to protect the burner from draughts.

To prevent the smokestack blowing over in strong winds a ring with guy ropes attached is fitted to the top of the smoke stack.

A combination-torch wrench is provided for lighting the heater, the wrench fits all fittings of the fuel line.

Fuel, contained in a Can, Gas, Military Cl COC 1H5525 (jerrican) fitted with a jerrican adapter, is fed to the burner through a flexible fuel hose to a control valve thence to the burner through a fuel tube.

When burning solid fuel the pot burner is removed and a cover plate fits the hole it occupied. Solid fuel is burned on a wire rack which forms a grate.

When the space heater is prepared for transport all items are packed in the body assembly, a carrying handle fastened to the left side of the body assembly is provided for ease of carrying.

The jerrican is not an item of the space heater and must be procured separately when liquid fuel is to be used.

REFERENCES:

ADE Schedule Drawing - 501685

Technical Manual & Parts List - 7610-21-102-1965